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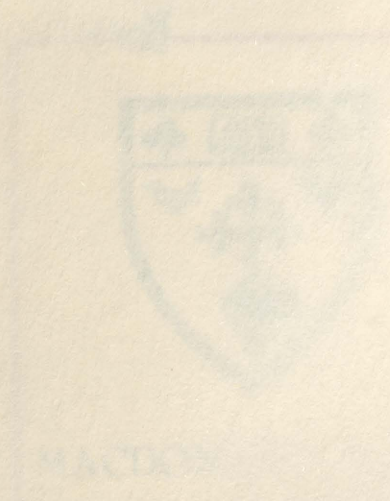
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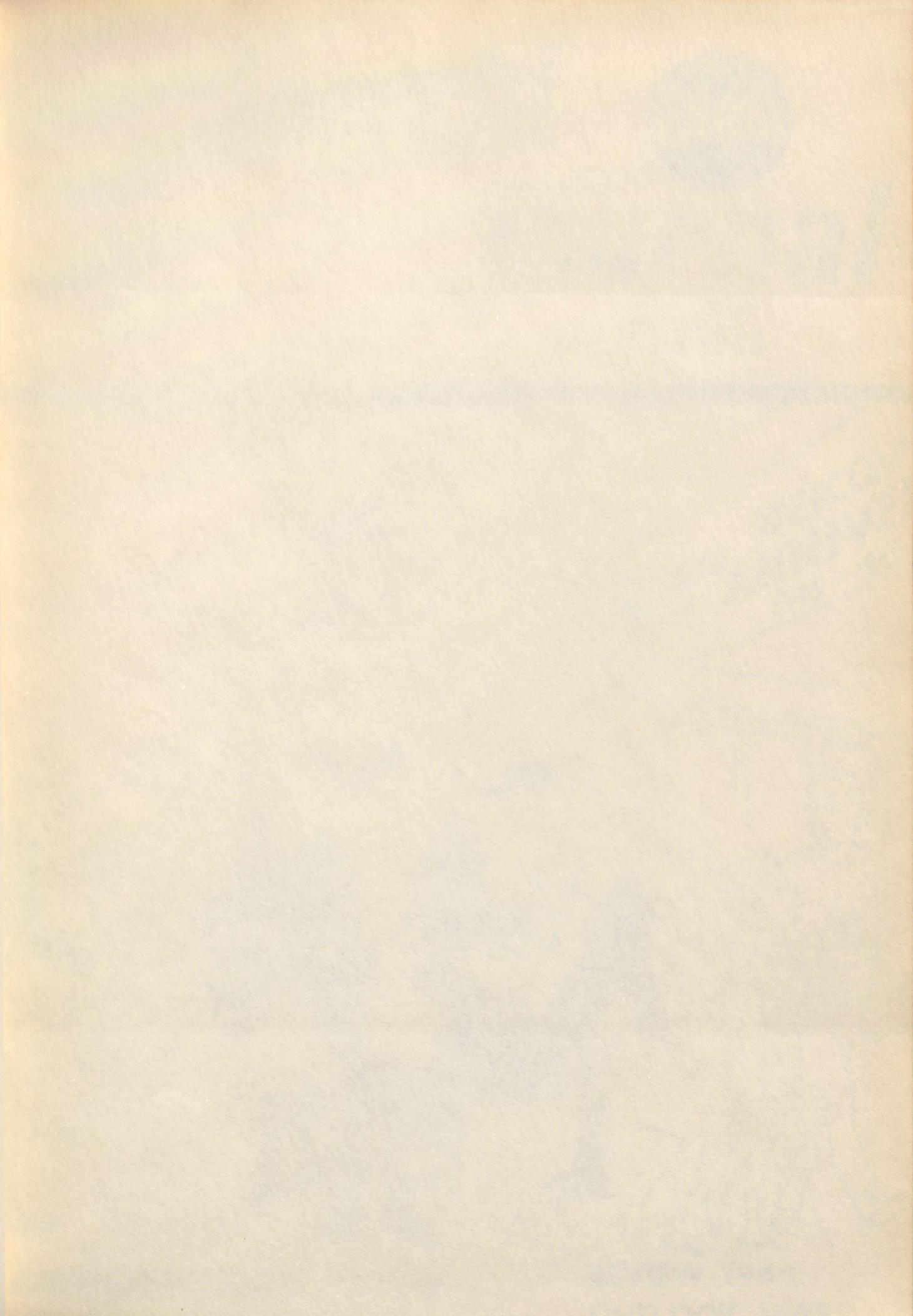
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OUR COVER: Well-known Canadian cartoonist, J. Simkins, gives his impression of a meeting of professors, students, graduates and old friends to celebrate the 60th Anniversary of Macdonald College. Photos, The Present, The Future by Ken Bowe.



INSIDE

THE EDITOR'S COLUMN

LOOKING BACK AND LOOKING FORWARD

MOST OF US, in looking at agriculture as we know it today, tend to forget how fast the industry has moved since the turn of the century. A quiet revolution, but still a major revolution, has taken place. Today an average Canadian farmer feeds 26 other people, while even as recently as 20 years ago, he fed only 10 other people. This tremendous advance in productivity has been possible through the application of science and technology on our farms. The use of genetics in developing new varieties of plants and new strains of animals, the use of fertilizers, insecticides and fungicides to improve our soils and to prevent the loss of what they produce, and, of course, the replacement of energy, supplied by man, horses and oxen, with mechanical and electrical power.

In Canada, along with this development, we have seen a steady increase in the utilization of our land, until today it is obvious that the 100 million acres of cultivated land we have in farms is about the limit we shall see. We have essentially completed our pioneering. Gone are the days when a man who could not make a living at home could go West for free land and, with the benefit of a strong back and not much else, had a chance to make a successful life for his family.

Today's farm people (and even more so for tomorrow's) must be alert and ready to deal with the many difficult technical problems they face. They must be good mechanics and good technicians, able to cope with problems in soil chemistry, plant pathology, entomology, veterinary medicine, and a whole host of other sciences, but above all they must be good business men. To support a family adequately, today's farm is an enterprise worth about \$60,000 to \$70,000 as a minimum. It will have to be still bigger in the future in order to produce the comforts our steadily increasing standard of living will make available to Canadians generally.

Such an evolution, with steadily increasing efficiency and fewer farmers operating bigger enterprises to feed more people, will mean social and economic changes in our farm communities and for our farm people, and this will be much more serious and difficult than the quiet technological and scientific revolution we are passing through today. Already our deficiencies in dealing with these social and economic changes are obvious — and their impact will certainly be greater. We have dealt with the little technical problems, we will see how well we do in the future with the bigger social and economic challenges.

H. G. Dion

THE PAST



HISTORY IS YESTERDAY'S NEWS

Here is a brief glimpse of the history of Macdonald College as recorded in yesterday's newspapers

Evidence by Dr. James Robertson to the Standing Committee of Agriculture and Colonization of the Government of Canada, 1906

Macdonald College has grown out of Sir William's keen desire to help the rural population to build up the country and to make the most of themselves. In some measure it has grown out of the school garden movement and the consolidated schools.

The Semi-Weekly Patriot, Charlottetown, July 25, 1907

The College, incorporated with McGill University, was founded, erected, equipped and endowed by Sir William Macdonald. It has cost so far \$1,500,000.

The London Times, November 9, 1907

The opening of Macdonald College which took place this week... has as its first Principal, Dr. James W. Robertson, C.M.G., late commissioner of Agriculture and Dairying for the Dominion who has been Sir William Macdonald's chief advisor.

The Ottawa Free Press, Monday, June 15, 1908

Parliamentarians visit the new seat of learning at Ste. Anne de Bellevue and are astounded at the manner in which Prof. J. W. Robertson has transformed his dreams of educational reform into practical realities for the benefit of the farmer and the teacher.

Central Canada Citizen, November 10, 1908

For the session of 1907-08, 215 students were enrolled of whom 189 were residents of the Province of Quebec, 10 of Ontario and 16 of the Maritime Provinces.

The Montreal Daily Witness, June 4, 1909

Quite a society event was the special convocation of McGill University held yesterday afternoon at Macdonald College for the purpose of bestowing honorary degrees on a number of distinguished Canadian and American citizens. It was indeed spoken of as a wedding — the wedding of McGill with young Macdonald. The only one who objected to this description was His Excellency, the Governor-General, who said he thought Macdonald had just been born and he had accordingly prepared a speech for a christening rather than a wedding. A notable absence was that of Sir William Macdonald. With advancing years, Sir William felt it to be more and more embarrassing to receive such praise.

The Montreal Daily Witness, June 6, 1912

The following students have completed their fourth year and have been granted the degree of Bachelor of Science in Agriculture: Robert Newton, Malcolm Davis, Emile Lods, L. C. Raymond, James Robinson, R. S. Kennedy, J. R. N. MacFarlane, Leandre Parent, Bruce Flewelling, John G. Robertson, H. B. Durost, F. C. W. Dreher, F. S. Browne, A. A. Campbell, W. W. Baird, J. A. Simard, A. R. Ness, S. M. Fiske, Ernest Rhoaders.

The Montreal Daily Witness, February 4, 1913

This year Macdonald College made a change in the arrangements for its usual short courses. The usual two weeks' course in livestock and field crops was divided up into six courses of two days each and were held at the following centers: Ormstown, Cowansville, Lennoxville, Abbotsford, Shawville and Lachute.

The Montreal Daily Star, July 29, 1916

In connection with all the regular courses, board and lodging is provided at the rate of \$5 per week.

The Montreal Daily Star, June 30, 1926

Technical agriculturalists make holiday on Dominion Day at Macdonald College. In the group immediately after disembarking from the steamer "Empress" yesterday are President Klinck of British Columbia; Dean Howes of Edmonton; Dean Horace Barton of Macdonald College; Dean Laird of Macdonald College School for Teachers; and Dr. Lockhead, Professor Emeritus.

The Journal of Agriculture and Horticulture, December 1926

Nova Scotia Agricultural College reaches agreement with McGill Faculty of Agriculture which will mean greater co-ordination of effort in agricultural education in Eastern Canada.

Farmers Advocate, May 5, 1926

Two appointments to the staff of Macdonald College have been announced. The new members are Dr. W. H. Brittain who takes on the duties of Assistant Professor of Entomology and Zoology and Dr. J. E. Lattimer who becomes Assistant Professor of Agricultural Economics.

Family Herald and Weekly Star, Montreal, Feb. 2, 1927

Macdonald Undergraduates stage miniature exhibition for the visiting Ayrshire breeders — English boys compete.

The Montreal Gazette, June 16, 1927

Sees Culture as Prosperity's Goal — Material Gains should be applied to self-betterment says Dr. J. E. Lattimer at Women's Institutes 14th Annual Convention at Macdonald College.

Family Herald and Weekly Star, July 11, 1928

Farm Boys Week at Macdonald. Two Hundred and Fifty of Quebec's Junior Farmers spent a holiday at the College.

The Gazette, Montreal, July 26, 1928

Macdonald College gives free tuition. Offers are to benefit sons and daughters in this province. Quebec government pays \$9.00 per month for each student's board in agricultural school.

The Montreal Gazette, May 25, 1932

McGill Announces New Appointment of Dr. T. W. M. Cameron in Dept. of Helminthology.

The Montreal Gazette, Oct. 11, 1932

Macdonald's loss is Canada's gain — Dr. G. S. H. Barton becomes Deputy Minister of Agriculture, Ottawa.

The Standard, December 15, 1934

A constant war against plant disease conducted at Macdonald College.

Winnipeg Free Press, June 18, 1935

The Canadian Association for Adult Education is formed at Macdonald College.

Sherbrooke Record, May 26, 1937

Agronomes are given advice by ex-Premier, Hon. Adelard Godbout and Dr. W. H. Brittain, newly named Acting Principal of McGill, addresses agronomes' banquet at New Sherbrooke House.

The Montreal Gazette, Sept. 23, 1937

Royal Commission probe of Protestant education urged by McGill leaders — Senate approves scheme.

The Montreal Gazette, Sept. 23, 1937

Education project considered by CBC — Murray suggests groups to be formed to hear broadcasts and discuss them.

Farmers Magazine, June 1939

A Rural Adult Education Service. McGill University establishes service in Eastern Townships.

The Montreal Gazette, Sept. 25, 1939

The Ottawa Journal, July 20, 1940

The Montreal Star, November 1940

The Montreal Gazette, April 13, 1942

The Montreal Gazette, Sept. 16, 1944

The Montreal Gazette, 1945

The Montreal Star, Oct. 14, 1949

The Montreal Gazette, June 1951

The Montreal Star, Sept. 1954

The Montreal Star, April 1955

The Granby Leader-Mail, July 1961

The Montreal Star, Sept. 11, 1964

The Montreal Star, Nov. 30, 1964

Macdonald Names New School Head — Miss Margaret McCready will direct Household Science — is Nutrition expert.

College Publishes new farm journal-effort at Macdonald intended to serve rural population of Eastern Canada.

College launches radio listening groups — educational radio project inaugurated at Macdonald Conference.

Food Experiments Aiding in War Diet — Dept. of National Defence takes over Women's Residence at Macdonald College.

Brittain to head adult educators — elected at Ottawa meeting.

Science studies Morgan Woods to help farmer improve lot.

Large Wooded Area Set Aside for Research in Forest Care — Morgan family turns over to McGill large farm tract at Ste. Annes.

New Two Year Intermediate Course introduced in the School for Teachers at Macdonald College.

Dr. H. G. Dion appointed Professor of Soil Chemistry and Assistant Dean at Macdonald College.

Dr. W. H. Brittain retires as Dean and Vice-Principal of Macdonald College. New Dean is Dr. H. G. Dion.

800 Quebec Farmers receive hints on "Better Farming Day".

Russians Visit Macdonald — Ivan P. Volovchenko, Russian Minister of Agriculture is entertained.

New Addition to Laird Hall Opened —

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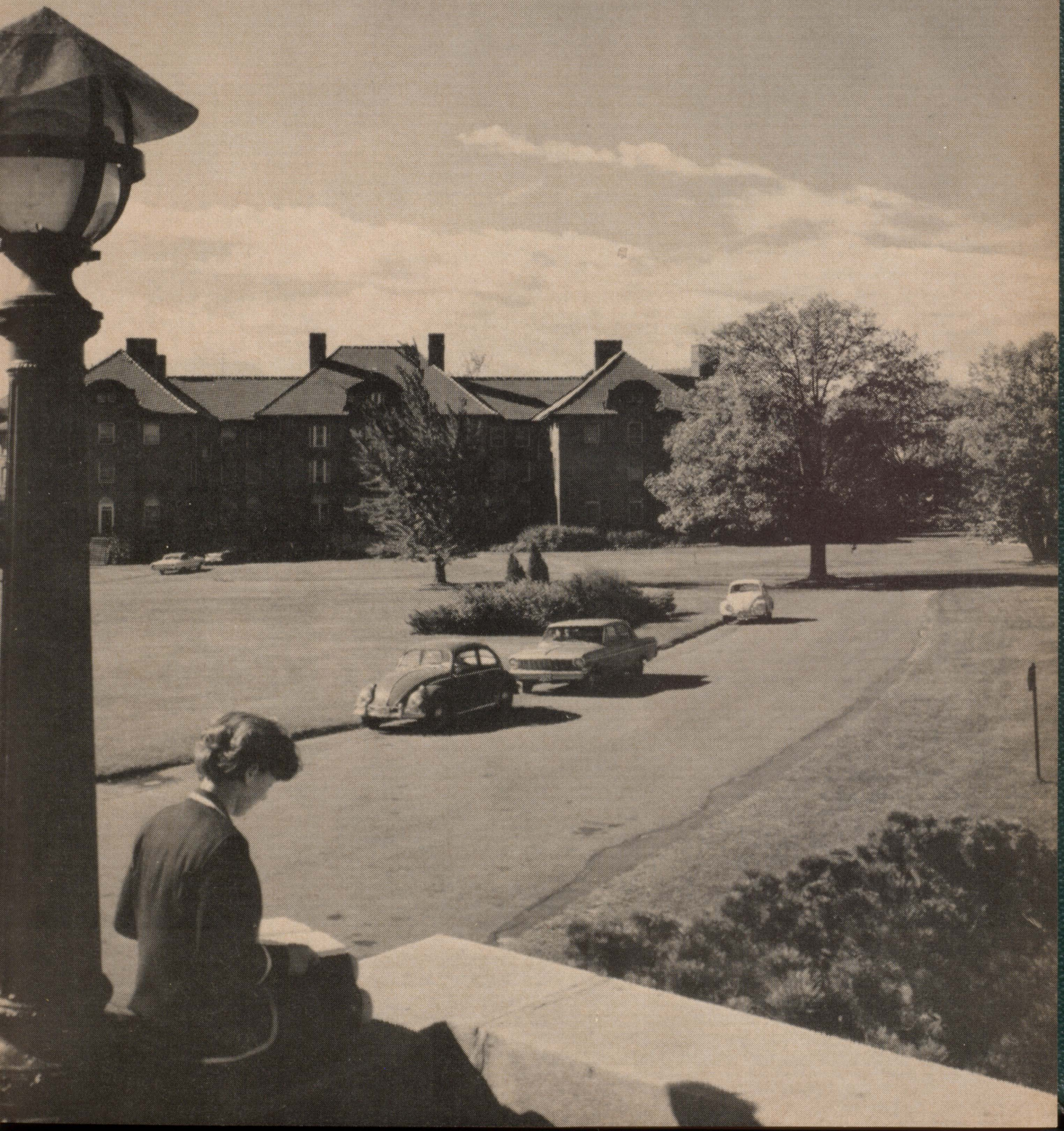
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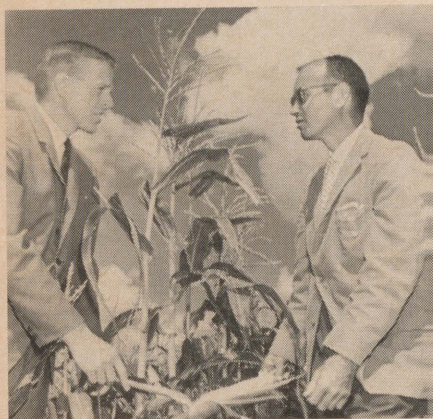
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THE PRESENT



THEIR HABITAT IS THE WORLD



NEITHER PLANTS nor the scientists who work with them recognize national boundaries. When Dr. Robert Brawn, geneticist and plant breeder at Macdonald College, requires breeding material to develop new corn varieties, he sends his request, often on a personal basis, to corn breeders in Mexico, in Central America and in South America. It was there that maize was developed as a food crop centuries ago by the native peoples who, knowing little of the science of plant breeding, selected strains remarkably suited to local conditions.

Today, these irreplaceable races of corn, each distinct in some important way, are carefully preserved and propagated in several centres in North and South America by scientists who think in terms of world benefit. And long before Columbus came to America, the Indians of Quebec's Gaspé Peninsula had selected a race now recognized as the world's earliest corn. From the stock which he is carefully multiplying, Dr. Brawn freely distributes packets of seed to fellow geneticists around the world.

Thus it was that Dr. Brawn, in his search for material which will grow well in cool weather, received from Columbia, seed of corn native to the high altitudes of the Andes.

In the greenhouse at Macdonald College, with temperature and day length controlled to imitate its native habitat, the newcomer flowered as expected. Its pollen was crossed to local varieties; its silks were fertilized by selected

plants. The mature kernels bore no outward sign of their limitless future possibilities.

But out in the field, there were surprises. Away from its normal conditions of climate the corn from the high Andes grew and kept on growing in thickness and height. But by fall not one cob had developed. And strangest of all, when the first frosts came to kill and turn brown the fields of corn and the test plots, this exotic variety still remained green and growing.

Whether this highly desirable characteristic of cold tolerance can be transferred to acceptable varieties is a challenge facing Dr. Brawn. When he succeeds, and after the years of patient selection and testing which must follow, producers who farm in areas where summers are cool and frosts come early will have a new corn to plant with greater certainty of harvesting a crop.

The story will not end there. Dr. Robert Brawn and his international associates press onward in their continual search for new and better crops. Their race is a race against hunger which also heeds no national boundaries.

THE NEW BREED

ATENDING WHAT may be the first course of its kind ever offered in Canada, men and women from the City of Montreal and its suburbs are going to night school at Macdonald College to study agriculture.

According to Walker Riley, Extension Specialist at the College, not all the movement is from the farm to the city. A small but significant number of families are leaving the city to live in the country. "Nearly half the enquiries for information about farming are from city people," Mr. Riley says.

"Agricultural Science Today," a series of ten lectures for non-farmers is proving to be one of the most popular courses in this year's extension program. A majority of the "pupils" are university graduates and many hold top professional and executive positions; two-thirds are considering the purchase of a farm.

The lectures covered everything from income tax to soil fertility. Commencing in October with a lecture on the size and scope of Canadian agriculture by Dr. C. B. Haver, the course covered farm soils and soil fertility, plant sci-

ence, the animal industry, animal feeding, poultry production, agricultural engineering, horticultural crops with special emphasis on potatoes, and marketing of farm products. The final lecture took the form of a question and answer period with several of the staff members of the Faculty of Agriculture on hand. In addition, Professor Stepler, National President, Agricultural Institute of Canada addressed the group on the topic of professionalism in agriculture.

In 1961, about 30% of all Canadians lived in the country, but less than 10% were full time farmers. It appears then that there is a new breed known as the "Sunday" farmers.

BUSINESSMEN PROFESSORS GIVE A NEW LOOK TO HORTICULTURE



A NEW POLICY of employing seasonal lecturers-specialists, having their own businesses and who are also responsible for certain duties within the University, has been adopted by the Department of Horticulture at Macdonald College. According to Prof. Murray the policy has been very successful.

"Because our science courses in Horticulture are designed to have practical

applications at the undergraduate level, we need lecturers who have the academic background and also the practical experience in such things as landscape architecture and floriculture," points out Prof. Murray.

In the case of landscape architecture, the new sessional lecturer is Louis Perron, a bilingual world-renowned landscape consultant who has won many of the top awards for landscaping in North America.

Born at St. Paul de Chester near Victoriaville, Mr. Perron attended Sir George Williams University before going to Cornell where he specialized in landscape architecture.

"I am the father of landscape architecture in Quebec," Mr. Perron states proudly. He was the first French Canadian to get a degree in this field. That was in 1929. Today, he is the "father" of such massive projects as the complete landscaping of the Trans-Canada Highway between Montreal and Quebec City, including all the picnic sites and rest areas. The most meaningful project, though, for Mr. Perron, is the one which he is presently designing. It is the Memorial Rose Garden for Expo '67, presented by the Rotary Clubs of which Mr. Perron is a member.

"My work with the students here at Macdonald is most rewarding," Mr. Perron said, "It's especially rewarding when you realize that there is a terrific demand for landscape architects at the present time in Canada. Each student is practically guaranteed a job," added Mr. Perron. "A job that could start at \$12,000 per year."

Working beside Mr. Perron can be found the other sessional lecturer in the Department of Horticulture, Samuel Wigdor. A graduate of McGill (B.Sc. '52), Macdonald (B.Sc. '56), and Michigan State University (M.Sc. '57), Mr. Wigdor is the owner and operator of Asselman's 'My Florist Ltd.', of Mount Royal Blvd., Montreal. His business is the growing of greenhouse plants that are used for planting in formal beds, in cemeteries and parks. All his greenhouses are located in the City of Montreal.

"In floriculture," points out Mr. Wigdor, "You measure size by the number of square feet of glass rather than by acres. Because it is such a specialized field of horticulture, it's necessary to give students some idea not only of plant physiology and soil science but also of costs of operation, transportation and a realistic facing-up to the problems of the business. We can't leave the lecturers sitting in an Ivory Tower," adds Mr. Wigdor.

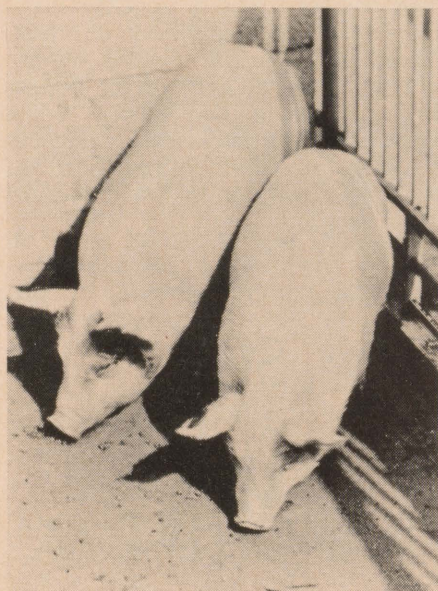
Besides his business interests and teaching duties, Mr. Wigdor is also

provincial secretary of Allied Florists, an organization designed to look after the commercial interests of the hundreds of florists in Quebec.

And what about the future of floriculture in this part of the country? Mr. Wigdor points out that with a little advertising and a change in the present government's trade barriers, we could be exporting flowers from Montreal to Detroit instead of importing them from Florida.

When you consider that the minimum initial investment for a greenhouse operation in this area is \$50,000, then it is obvious for the need of a specialized training in this field for students majoring in horticulture.

PIGS NEED COMPUTERS TOO!



IT WAS A cool, damp night in October when Prof. John Moxley of the Department of Animal Science at Macdonald College stepped off a DC-8 jet at Dorval's International Airport. He had just returned from a round table discussion by Canada's top animal geneticists on the subject of livestock improvement and how it can best be accomplished in Canada in the next few years. Only those scientists actually involved in animal genetics attended the meeting—other people were not allowed to attend because it was felt that the ideas being discussed were so revolutionary that Canada's livestock

producers would refer to them as 'just some more garbage from the Ivory Tower'.

It is from meetings such as this one held in Winnipeg, and from other meetings such as the Canadian Swine Improvement Conferences held at Dorval in April of 1964, that recommendations are being made that could result in major changes in the livestock industry.

"Never before have we had the interest in Canada in livestock improvement that we have right now," stated Prof. Moxley, "and never before have we had the tools, namely, ultrasonics to measure fat and lean meat in live animals, Infra-Red rays to determine milk composition and computers to help us in our research work in animal breeding and production."

Prof. Moxley went on to point out that if it hadn't been for the everyday use of the computer in animal research at Macdonald College, then many of the projects now completed would have been impossible. He cited the research case where he wanted to carry on a comparison of boars and mating systems. This required double matings by different boars to produce litter mates with different sires. It was also necessary to use artificial insemination with the swine being tested and to have all the baby pigs blood-typed to insure proper identification. This blood typing and A.I. in swine was started in the fall of '64 and sufficient results on which to base recommendations won't be made public until 1965.

The blood typing and A.I. were relatively easy to accomplish but when the data started being recorded—the weight of the pigs at birth, their weaning date and weight, etc.,—there was so much information that the job of analysis looked impossible.

"If it hadn't been for a computer to process the data, we would have been stuck," remarked Prof. Moxley, "but what used to take one person with a good calculator one year to do, we can now do in about four minutes with the computer."

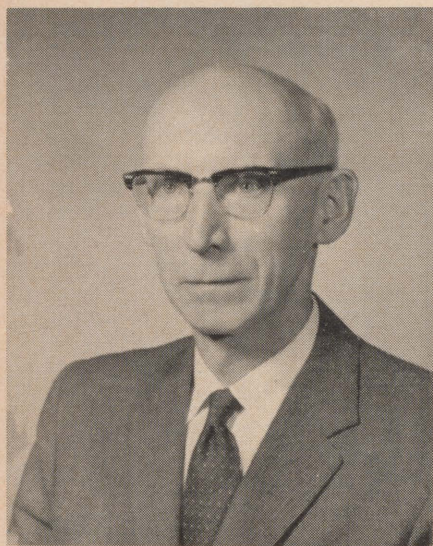
Theoretically then, one would think that the computer has replaced technicians; however, in actual fact, the computer has enabled research workers to conduct research not previously possible and leave more time to interpret the results for practical use.

And what about the future use of these computers in agriculture? According to Prof. Moxley, the Canadian livestock industry has not even begun to utilize the potential of data processing as a tool for improvement. "As soon as a computer is more readily available," states Prof. Moxley, "we could develop a program which could provide the swine producer with a com-

plete up-to-date analysis of his operation. Such a program would provide the producer with the information he needs and when he needs it to make intelligent management decisions."

With a large number of farmers using a computer to assist them in their farm enterprises, the cost of the services they provide will be only a fraction of the value of the improvement provided.

A REAL SCHOLAR



"**F**IRST YEAR Physics, 2nd year Calculus, 3rd year Biophysics, Diploma-Agriculture Physics — these are my present teaching duties — and I enjoy the classroom and laboratory work. In fact, that's my hobby — teaching and trying to keep pace with all the scientific developments so that I can pass them along to our students." This is the man who of all Macdonald College professors, has the most contact with students in Agriculture, Home Economics and Education. This is the man students refer to as "a real scholar". This is the man who has been chairman of the Department of Agricultural Physics at Macdonald College since 1930. This is Professor William Rowles, born in Manchester, England, raised in Saskatchewan, educated at the University of Saskatchewan and McGill University and who this year retires as Chairman of the Department of Agricultural Physics at Macdonald College.

"I've always been interested in farming," reminisces Prof. Rowles, "Soon after I finished High School, I owned

a farm near Empress, Alberta. My father owned a farm on one side of the Alberta-Saskatchewan border, and I owned one on the other. At that time I was going to be a farmer so I took the Associate course in agriculture at the University of Saskatchewan. But I found out that there was so much fascinating information, especially in the field of physics, I went back to University and got my B.Sc. with honours in Physics in 1924. After that I came to McGill — it and Toronto were about the only universities offering graduate studies in Canada in those days and got an M.Sc. in '26 and a Ph.D. in '28.

While Dr. Rowles was working on his Ph.D. studies, he was invited by Dr. Barton, vice-principal of Macdonald College at that time, to help out with the teaching of Physics. His part-time job became a full time position just as soon as he had finished his graduate programme. In 1930, he was appointed Chairman of the Department and in 1948 was appointed Professor of Physics. He is married to the former Laura Chalk, herself a Ph.D. of McGill, who shares with him a keen interest in physics and in the welfare of college students.

What about the future? While Dr. Rowles will be retiring from the chairmanship of the Department this year, he will continue his teaching responsibilities. "I would like to teach as long as I can," states Dr. Rowles, "while I'm interested in gardening, reading and travelling, my chief interest is teaching." And that's a full time job for Prof. Rowles.

SOIL AND MEN

"**U**N TIL NOW, governments in Canada have been concerned with land settlement when they really should have been concerned with land use. But now the mistakes are more obvious and people all across Canada are becoming more concerned with proper land use. That's my main interest — how to use land in the most efficient way in its social and economic environment; land utilization we call it." These are some of the ideas of the newest member of the Department of Soil Science at Macdonald College, Professor Gerry Millette.

Working in the counties of Vau-dreuil and Soulanges — that 27-mile

triangle of Quebec that borders Ontario and is detached from the rest of the province by the Ottawa and St. Lawrence Rivers — Prof. Millette has come up with a master plan for land use that is setting the example for other similar land use maps elsewhere in Canada.

"The big problem," claims Prof. Millette, "is that the area under study is suffering from urbanization and industrialization. There's an increase in the estate value of the farms and this increased value puts them beyond the point of making farming a worthwhile venture. In addition, you have the Trans-Canada Highway running right through the middle of the two counties. While this encourages urbanization, it also means that this area is now just one half hour from the center of Canada's largest city."

"After an in-depth study of soil maps and following research on the various population and market statistics of the area, Prof. Millette prepared a master land use map for the two counties.

The area close to the Ottawa River has been designated as an area for industrial and urban development. Further back toward Rigaud Mountain, he has outlined a hilly area suitable for housing and recreation sites. The remainder of the county is acceptable for agriculture with a potential of 50,000 acres for market gardening.

"They can grow everything from asparagus to zucchini there," adds Prof. Millette. They have 151 frost-free days which is about as long a growing season as one can find in Quebec. This, combined with a regular three inches of rainfall per month and the proximity of the Ottawa and St. Lawrence Rivers for supplementary irrigation, makes this area a natural site for fruit and vegetable production."

Included in the land use recommendations, are the plans for a large fruit and vegetable warehouse followed by a big frozen foods plant. Because the land is so close to the city, it is felt that the production of these high value crops is the one way to protect this farmland from urbanization. The only other way is through land zoning, and in the past this type of legislation has not proven popular in rural areas.

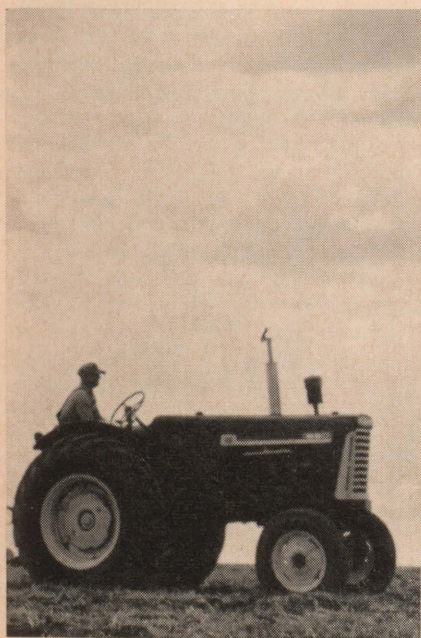
"If this plan is not put into effect," claims Prof. Millette, "then land zoning is the only other method of land use control for this area. Of course, if this land zoning legislation could be combined with incentive tax cuts for those industries that wanted to locate on the poor land, then the problem wouldn't be as great," added Prof. Millette.

When asked if this same type of plan could be made for other areas of the country, Dr. Millette replied that it is quite possible that a similar plan could be drawn up for any area. At the pres-

ent time, though, he is busy trying to sell his ideas to the government. For this plan to work, it requires the co-operation of the universities, the provincial governments, private companies and the people in the community. In addition, A.R.D.A. could provide leadership with detailed soil and topographic surveys as well as assistance in communal and individual farm planning for crop production.

It all adds up to the fact that land is the basis for rural prosperity and land planning is the only way of preserving any semblance of a rural community. With Dr. Millette's experience as a rural development officer for F.A.O. in Togo, Africa, he hopes that some of the same principles will apply in this area. For the benefit of other communities, we can only hope that Dr. Millette's ideas are the beginning of a serious look at land utilization for agriculture in Canada.

THE SKY'S THE LIMIT



ONE OF CANADA'S big businesses is that of farm machinery. In 1963, the total sales amounted to \$329.6 million dollars and preliminary estimates indicates that sales will be even greater in 1964.

According to Professor Jim Cooper of the Department of Agricultural Engineering at Macdonald College, most

farmers have more money invested in farm machinery than in drainage and farm buildings. In Quebec this averages out to \$38 per cleared acre, and this shows indications of becoming even higher.

"With increased mechanization and the real shortage of farm help, one can't help but invest more money in more machinery," adds Prof. Cooper.

When asked about the possibilities of farm machinery co-operatives in Eastern Canada, Prof. Cooper was careful not to commit himself to any definite answer. "I'm afraid past experience points out that co-ops don't work. The conflicts between owners are too great. What is needed for these co-ops to work is an iron clad agreement — it might work if there is a definite contract among the owners. Of course another problem is that of maintenance. Who is going to be responsible for maintenance of the machine?"

Despite all these problems, Prof. Cooper adds that with the new federal government assistance, machinery co-operatives might find the impetus that they need.

Whatever the case, the farm machinery business is still 'big' business, and Prof. Cooper feels that instruction of students in agriculture in design and maintenance of farm machinery is extremely important.

"As Canadian farms become more and more mechanized, we will need agriculturalists who can deal with this new technology," points out Professor Cooper. It looks as though the Department of Agricultural Engineering is helping to fill this need with 19 students registered in this specialized field of study.

A PALEO- NUTRITIONIST

A PALEONUTRITIONIST? There were lots of paleonutritionists at the American Association for the Advancement of Science Meetings in Montreal on December 30. One was from Macdonald College.

"I'm really a botanist first and a paleonutritionist second," points out Professor Eric Callen of the Department of Plant Pathology at Macdonald College. But it was as a paleonutritionist that he presented a scientific paper in Montreal entitled "The Food Habits of Some Pre-Columbian Mexican Indians".

The study of the fecal remains of these prehistoric Indians of Mexico has been one of Dr. Callen's recent in-

terests. Financed by the Peabody Foundation for Archaeology, Andover, Massachusetts, and assisted by the National Research Council of Canada, Dr. Callen has made two trips to Tehuacan in Puebla State about 150 miles south of Mexico City. This is the site of extensive excavations by many archaeologists to study the culture of these Pre-Columbian Indians — a culture that has indicated a continuous development dating back from 7000 B.C. to 1550 A.D.

As a member of the study team, Dr. Callen was particularly interested in the food habits of the early culture with the possibility that this could lead to some indication of the origin of our agricultural crops.

"In about 7000 B.C., these people were eating grass seed which had been ground in stone bowls. In some cases the food had been fired," reports Dr. Callen. "It wasn't until about 5000 B.C. that they started eating corn in addition to the various grasses such as foxtail millet. In addition, they ate a fleshy root of a tree, cactus, agave, and chile. Being hunters of wild game, their meat eating habits included turkey and deer with an occasional feast of mice, lizards, snakes, badgers, and raccoon." "No fish," adds Dr. Callen.

Not only has Dr. Callen found some interesting possible origins for crops that we take for granted today, but he has found that it was in this area that the first corn was hybridized. By studying the coprolites, Dr. Callen has been able to trace the agriculture of these Indians, showing the origination of corn (the cob was about the size of your little finger nail) right up to the domestication of plants and animals.

While Dr. Callen's study tours were held in '62 and '63, there is now considerable interest by Canadians in the culture of these Mexican Indians. Recently, the Canada Council granted \$12,600 to the University of Montreal to finance their first expedition to Mexico City where archaeologists will examine 15 sites within a 20-mile radius of Mexico City. This expedition will last three years.

When asked, why don't we do similar studies on the North American Indian, Dr. Callen replied that the atmosphere is too damp here. The remains decay and are not sufficiently well preserved to study. In addition, the Canadian Indians were nomadic, whereas these Mexican Indians lived in caves for hundreds of years and were only semi-nomadic.

A paleonutritionist? — one who studies fecal remains to find out what people have been eating. Dr. Callen finds it fascinating, though, and hopes to return to the Coxcatlan caves of Mexico as soon as possible.

CAN THE EAST BEAT THE WEST WITH WHEAT?



“WE NEED TO produce more feed in Eastern Canada. Corn is good but we need some crop that will also serve as a nurse crop for our seeded-down acreage.” Statements such as this one are often made by farmers

these days. Prof. Harold Klinck of the Department of Agronomy has heard these statements and is already attempting to find an answer.

“We’ll never be able to produce all our feed requirements in the East; Prairie farmers don’t need to worry about the self-sufficiency of Eastern farmers when it comes to grain,” emphasizes Dr. Klinck. “Because of the big problem of lodging in oats,” adds Prof. Klinck, “we’ve got to find something else. Wheat seems to be a possibility.”

During the summer of ’64, a yield test of major spring wheat varieties was conducted at Macdonald College. In addition to the standard Canadian varieties of Selkirk, Thatcher, Canthatch, Pembina, Park, Acadia and Cascade, two varieties of wheat grown in Vermont, Henry and Lathrop, were tested. Also included in the test were varieties currently being developed in Western Canada, England and Sweden.

The highest yield was obtained from Lathrop at 34.1 bushels per acre. From the standpoint of feed energy this would be equal to a yield of nearly 70 bushels of oats.

“This impressive production, combined with the fact that spring wheats will grow in those areas beyond the corn frontier, indicates that wheat could become a major crop in Eastern Canada,” points out Dr. Klinck.

“The emphasis on the milling quality has done more than anything else to prevent the development of high yielding feed wheats,” adds Prof. Klinck, “with a sound breeding program designed to develop good feed wheats, we could increase wheat yields by 30% in this part of the country.”

What could be the key to new wheat varieties is held by Dr. C. Suneson of the University of California. Each year he collects surplus F₁ hybrid seed from plant breeders all over the world. He mixes all this seed together, grows one crop, then makes small quantities of the resulting seed available to any plant breeders looking for new strains. Dr. Klinck seeded one-fiftieth of an acre with this seed mixture during the past summer. “There was every type of wheat you could imagine in that crop,” reported Dr. Klinck, “but we did find several plants that look promising as far as disease resistance and general vigour are concerned. These few plants could be the beginning of a new variety that could ultimately lead to 50,000 acres of wheat in Quebec.

“The big problem is not in developing a new variety,” adds Dr. Klinck, “but in getting people to grow it.” In Quebec the growing and feeding of oats is a well established tradition. But ideas and practices do change and, in fact, are changing much more rapidly every year.

“While there’s no threat to western grain growers,” points out Prof. Klinck, “we could be on the brink of a new philosophy — that of spring wheat as an important crop from Eastern Canada.”

A SURVEY OF ATTITUDES

A MASSIVE research project has been undertaken by the Department of Woodlot Management at Macdonald College to study the attitudes of small woodlot owners in two areas of Quebec. Financed by an extra-mural research grant from the Department of Forestry in Ottawa, the study has been focusing on Soulanges and Huntingdon Counties.

Armed with a detailed questionnaire, interviewers have been visiting owners of woodlots and asking questions about the management practices they use on their farms, where they get information about improved woodlot practices, and the possible methods of marketing their woodlot products.

Already interviews have been con-

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ducted with 315 farmers in Soulanges County and 200 in the Huntingdon County area. The answers to the questions are being coded and processed with I.B.M. data processing equipment located at Macdonald College. The analysis of the attitudes will be ready for publication by the first of May.

A forestry graduate, Mr. Richard Lord, of the University of New Brunswick, is conducting the research project. "While it is too early in the research program to give any definite trends," says Mr. Lord, "most farmers have the same problems in managing their woodlots. The big response is that farmers just don't have time to look after their woodlots and that there isn't any labour available."

Mr. Lord adds that there appears to be very little interest in selective cutting with the exception of cutting for firewood. In addition, there seems to be little knowledge of markets for woodlot products.

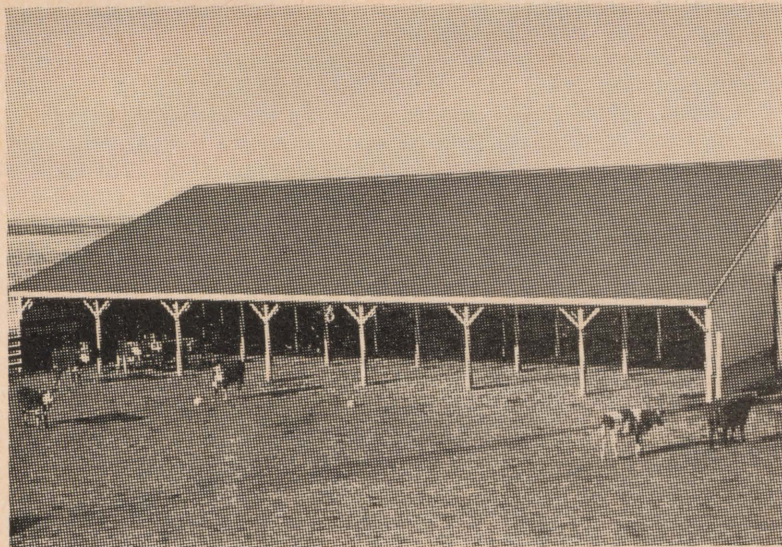
Most of the woodlots in Soulanges are 20 acres in size while those in the Huntingdon area are about 70-80 acres. Nearly 100 per cent of the interviews in the Soulanges area were conducted in French with about half the interviews in the Huntingdon area in English.

We asked the \$64 question: "Where do woodlot owners obtain information to assist them in operating their woodlots?" The interviewers were surprised to hear that most information was obtained over the back fence — from neighbours. Some farmers reported seeing the Macdonald College "Focus on Forestry" series on television; some said they read a bit about woodlots in farm magazines, a few had visited the Morgan Arboretum. Hardly any had made use of the forestry extension services of the government.

This is the first major study of attitudes of woodlot owners in this area. The results are already startling and it appears when the study is complete, that a new program could be implemented to the advantage of everyone concerned.

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Welfare. Despite the insignificance of the buildings, tucked inside is the one department of government which is set up to administer the Food and Drug Act of Canada. As such, its actions have an influence on the daily lives of every Canadian.

Because of the importance of this Directorate and because there has been a growing number of questions from Canada's consumers, a special advisory group has been established. Known as the Advisory Council of Consumers, Macdonald College's Director of the School of Household Science, Miss Helen Neilson has been selected as one of the 17 members of this council.

"The real purpose of this council," says Miss Neilson, "is to advise the Food and Drug Directorate of the Department of National Health and Welfare on the needs of Canadian consumers in those areas where there is concern by consumer groups about the types of food and drugs being sold to Canadians. "In addition," Miss Neilson pointed out, "there is a real need for a direct channel between the consumer representatives and the government on the matter of policing the food industry, drugs, cosmetics, and proprietary medicines. It really is a formalizing of

a communication channel," adds Miss Neilson.

Representing Quebec consumers on this National Council are Mde. A. Paradis of the 67,000 member Cercles des Fermières from Quebec City; Mde. T. Casgrain of the Voice of Women, Montreal; Mde. J. F. Pilon of the Canadian Association of Consumers and the Quebec Agricultural Marketing Board; Mde. H. Plamondon of the Meat Packers Union, Montreal; and Mrs. V. W. G. Wilson of the Canadian Association of Consumers. Along with Miss Neilson and the other council members representing every area of Canada, the group will meet in Ottawa at least twice a year. The group has already met once at which time they considered the problem of the addition of artificial colouring to foods. Their next meeting will be in February.

Miss Neilson feels that the council has a tremendous potential for communication. "It's essential," points out Miss Neilson, "that Canadians become aware of the advisory council and its role in advising the government on matters pertaining to food and drugs in Canada. This will take time", adds Miss Neilson, "we've waited a long time for this type of contact with the directorate, now we have the formal lines of com-

munication, every consumer should feel that this council is his or hers and should make their views known to members of the council."

Most Canadians are unaware of the existence of the Food and Drug Directorate at the present time. Once the advisory council starts assisting in the preparation of legislation affecting all Canadians, maybe then the Food and Drug Directorate will become better known.

Miss Neilson is very impressed with the activities of the Council up until now and feels that the future has a tremendous potential. She has devoted her life to the betterment of the science of home economics and nutrition. It is fitting that she should be selected to provide leadership from the University on this important council — leadership that will have an effect on Canadians whether they live in Great Whale River or Vancouver.

LISTEN HERE RACHAEL

APPLE GROWERS spend thousands of dollars annually for chemicals to control orchard insect pests. Studies now under way in the Department of Entomology are making it practical to reduce the number of spray applications without sacrificing fruit quality. Grower and consumer alike benefit.

Previously, it was thought that many factors — frost, heat, parasites, birds, insecticides — all worked together to keep an insect population from overrunning an orchard. Mainly, it was considered that insect numbers rose and fell as the result of the combined effect of these factors; the actual cause of outbreaks was not known.

But Dr. E. J. LeRoux and his associates have never found this concept to hold true. Through ten years of study in apple orchards in Quebec, one variable mortality factor, or possibly two, has been responsible for insect population control. The key-factor however in the regulation of each orchard insect may be different. The other agents take a constant toll, but have little effect on the population change from generation to generation.

Take, for example, the common orchard pest, the Eye-Spotted Bud Moth. Dr. LeRoux has prepared "life tables" showing the mean mortality at each stage of the life cycle. Quite regularly, two-thirds of the eggs are dried out or destroyed by parasites. But sufficient larvae always hatch to cause an epidemic if all survived the next stages. But another 25%, more or less, are

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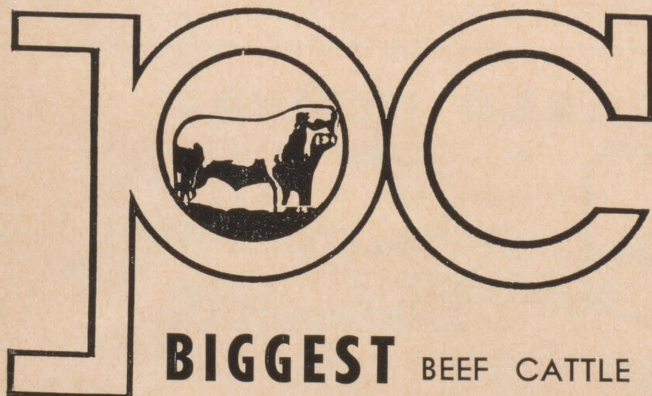
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eliminated before fall. Still a significantly large number live on. Then the winter frost takes its toll. For the Bud Moth, this is the key factor, Dr. Le-Roux finds. In a hard winter, 95% of the remaining larvae may be killed. After a mild winter many survive to maturity, and the population builds up.

For the Pistol Case-Bearer, a minor orchard pest, the key mortality factor was found to be a parasite of the larvae with an assist from the birds. But in no species so far studied have predatory insects or insecticides played a decisive role in the rise and fall of pest populations.

These findings are fundamentally important from the point of view of science. And for the fruit grower they are making possible a much more precise, efficient, and therefore economical, spray program.

THE JET AGE ECONOMIST

DR. CECIL HAVER of the Department of Agriculture Economics is usually either coming home or preparing to leave. His travels are all in the interests of agriculture, he assures us, and quite often they deal with specific economic problems and problem areas — areas such as that rocky, wooded section of Northern New Brunswick where many farmers wonder where their next meal will come from.

Dr. Haver has just completed a massive study of resources, income levels and potential for growth of the Restigouche, Gloucester, Alwiche parish, Northumberland County area of Northern New Brunswick where the cities of Campbellton and Bathurst are located. Using ten student surveyors, a lengthy questionnaire for 300 farmers, fishermen and foresters, the electronic computers at McGill University, the University of Ohio and the University of Toronto, and financed by the Agricultural Rehabilitation and Development Act, Dr. Haver has produced a master plan for development of this economically backward area of New Brunswick.

"Northern New Brunswick will never be a top-notch agricultural area of Canada", states Dr. Haver. "Right now they have a lot of rural residents with a few commercial farmers. They have some potential in their forest and fishing industries and the secondary industries associated with them — but their biggest potential is in the development of mineral deposits and the industries that go along with mining."

This area of course is the one designated by Premier Robichaud as the site for the huge steel and base metal complex for New Brunswick. Dr. Haver feels that the site is an excellent one: close to the supply of basic minerals, close to a major labour market and most important of all close to a tide-water seaport (Belledune) which is ice free and could be easily prepared for export trading on a year-round basis. Dr. Haver adds that the worry about the comparative advantages of various developing steel centers in Canada is overstated — there's room for all of them; we need competition. And, of course, the development of the steel industry will be a major shot in the arm for agriculture, fisheries and forestry industries in the study area.

While the A.R.D.A. study was completed in late December of 1964, Dr. Haver did not take time to rest on his laurels. He's now involved in a preliminary study of the resettlement possibilities in Newfoundland — trying to suggest methods of agglomerating the population of Newfoundland into viable economic settlements.

In addition, Dr. Haver has all the responsibilities of the Department of Agricultural Economics at Macdonald College. This involves teaching undergraduate students in agriculture for 18 hours per week and guiding 14 students studying for advanced degrees in economics. You probably wonder what Dr.

Haver does in his spare time — he farms 1,500 acres which in turn supports 400 horses.

THE LIVING EARTH

THE SOIL we stand on is a working world of particles and organisms — a constantly changing world that in its activity provides us with the food we eat.

"There are really two soils," states Dr. Roger Knowles of the department of Agricultural Bacteriology at Macdonald College, "the soil we usually think of is the inorganic one, the micron-size particles, the ion exchange solutions, clays, sands and loams. But there is the second soil, the living soil, made up of viruses, insects, fungi and bacteria. This latter soil bacteria is my interest."

Dr. Knowles has a number of graduate students from a number of different countries helping him in his pursuit of knowledge of the living soils.

One project that is currently underway involves a study of nitrogen fixa-

(Continued on page 46)



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THE FUTURE



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Because of agricultural research and development, farming today is not a rural way of life any longer — it's a highly technical business called Agribusiness which has been creeping into the national scene with ever increasing impact. What's ahead? What new breakthroughs are on the horizon?

We asked several leaders in Canadian agriculture what they thought. Here's what they said:

Plant Growth Regulation, Genetic Improvement of Animals and Pest Control

**These will all have a major effect on agriculture
by Prof. George Jones, Dept. of Crop Science, University of
Guelph, Guelph, Ont.**

THERE ARE THREE key areas of discovery that will have a major impact on farming and man's capacity to produce food for an expanding population. These three may be grouped as follows:

- 1) an understanding of plant growth and reproduction, and an ability to regulate these.
- 2) Genetic improvement of animal converters and the knowledge of how to feed them.
- 3) Pest control in both plants and animals.

In the production of food a prime concern is to understand photosynthesis, growth and reproduction in plants.

Current research indicates the possibility of not only increasing photosynthetic yield but also to direct it in the growth and reproduction cycles (either by genetic means or through an understanding of growth regulators) toward a desired end product.

In light of current research it is already quite obvious that plants will be grown in weed-free environments. It would also seem possible to expand the capacity to control insects and diseases to the point that plants may be grown in relatively pest-free environments. This pest-free environment provides a freedom for designing plants uniquely adapted to fix sunlight energy.

Coupled with this will come the ability to code a plant to remain vegetative or become reproductive.

Although an animal converter involves a wasteful biological cycle, animal food products will remain for a long while yet. To this extent the improvement in efficiency of the converter will go a long way in improving production and will have a major impact on farming. Undoubtedly current research in nutrition, herd health management, and genetic improvement will be major factors here.

(Continued on page 28)

REVIEW '64 — OUTLOOK '65

**by
Dr. C. B. Haver**

Because of the increasing complexity of this business of farming, the staff of Macdonald College feel that an annual outlook statement provides important information on which to base management decisions. The Macdonald Farm Journal takes pleasure in presenting this annual outlook statement.

Introduction

IN BRIEF, Canadian agriculture has had another good year. Large wheat sales have again aided the western wheat farmer as well as improved Canada's foreign exchange position. A buoyant, rapidly growing economy has absorbed large supplies of red meats and poultry. Even the position of milk and dairy products has improved. The only distressing aspects of the farm picture in the past year have been the cattle market, decreased crop yields in the western provinces, and hay and crop yields in some parts of the eastern provinces. Rising costs in all sectors of agriculture still continue to be a problem.

Herein we shall review the Canadian farm and non-farm situation in 1964 and appraise the outlook possibilities for 1965. The Canadian economy is currently enjoying a period of expansion, the longest since the 1940's. In terms of gross national product the year to year increase was 6.1 per cent in 1962, 6.6 per cent in 1963, an estimated 8 per cent in 1964, and a 6 per cent increase is projected for 1965. Thus the prospects for continued expansion of general economic activity in the Canadian economy are good.

Nineteen-sixty-four undoubtedly goes down in the record books as a peak year for Canadian farm income, and it is projected that farm income will be somewhat less in 1965. This projection is based largely on our wheat position and the projection that the cattle market will not appreciably improve. Other agricultural products are projected to be either slightly higher or slightly lower than last year, but the net effects of these cancel out. Again, United States' agricultural production and the farm programmes in that country will affect us. Their feed grain price support programme will undoubtedly aid in maintaining our feed grain prices, and thus increase the feed grain costs of some producers; their improved hog prospects will undoubtedly lend support to our sagging hog market, their export programme in wheat, particularly to Russia, may cut into a market that we pioneered; and their changed wheat price support arrangement may reduce world prices.

Farm production in Canada in 1964 was 7 per cent under the record year of 1963. Wheat and coarse grain production were more nearly normal in 1964 and therefore production was lower than in the previous record year; apple and tobacco production was also down, but increases occurred in cattle, hog, and poultry production. While farm production itself was down, cash farm income reached a new high \$3.5 million in 1964, 10 per cent above the previous record year set in 1963. Cash income, of course, reflects inventory liquidation particularly of crops produced in a previous year or years. The cash income outlook for 1965 is favourable due to the relatively strong inventory position of farmers; however, it is anticipated that rising costs combined with slightly less expected gross income will result in a lower prospective net income to Canadian agriculture. The buoyant and healthy non-farm economy continues to attract surplus farm labour. It is projected that the number of farmers and the number of people employed in agriculture will continue to decline; therefore, projected per capita farm income should continue close to the levels attained in 1964.

General Economic Prospects

THE GENERAL economic outlook for the Canadian economy in 1965 is excellent. Canada continues to enjoy a period of expansion that began prior to 1962 and reached a peak in 1964, when it is estimated the gross national product reached 8 per cent over the previous year. Most economic writers are projecting at least another 6 per cent growth in gross national product this year. An important aspect of this growth has been that price

increases have played a very small part in its upward climb. The nation's price indices have not increased more than 2 per cent per year in the last three years, while the gross national product has exceeded 6 per cent growth in each of the same three years. One of the main reasons for the continued upward surge of the Canadian economy is the resurgence of investment expenditures. The investment boom of the 1950's had tapered off in the late '50's and early '60's, but the economy has apparently digested this and is embarking on another investment boom. Public and private investment intentions for the forthcoming year

TABLE 1

Selected Economic Indicators, Average 1952-56, 1957-61, Annual 1962, 1963 and 1964

	Civilian labor force		Index		Trade		General	Consumer	G.N.P.	Personal
	Population	Unemployed	of	of	(monthly	average)	wholesale	price	at	disposable
	Total	as % of	industrial	labor force	Exports	Imports	price	index	market	income per
	— thousands —		1949=100	production			index		price	capita
				1949=100	million	dollars	1935-39=100	1949=100	million	dollars
1952-56	15,274	5,521	3.7	135.1	354.3	370.8	221.6	116.5	26,321	1,157
1957-61	17,456	6,256	6.4	163.2	426.9	454.8	230.0	126.1	34,679	1,365
1962	18,570	6,608	6.0	186.0	514.9	521.5	240.0	130.7	40,339	1,512
1963	18,896	6,737	5.5	195.9	566.5	546.6	244.6	133.0	43,007	1,580
1964	19,237	6,914a	5.0a	211.1b	639.0b	551.8c	245.8a	135.0a	46,000b	1,611b

Source: Dominion Bureau of Statistics.

a) January to September

b) January to June

c) January to March

indicate a rise of total investment by 16 per cent, and if this materializes, it will be the largest year to year increase in such expenditures since 1956. Thus total investment expenditures are projected to reach a new Canadian high.

Therefore, we are projecting a buoyant, growing non-farm economy in 1965. The projected buoyant growth in the non-farm economy is due to a number of considerations other than the new investment expenditures mentioned above. One should first mention that one of our prime influences is the economic situation in the United States, and that economy is also moving buoyantly along while we are enjoying substantial spill-over effects. The threat of the interest equalization tax in the United States to minimize capital outflows has not affected us visibly to date, and apparently a tacit agreement between the two countries to attempt to equalize interest rates may have tended to minimize capital outflows from the United States, resulting in the flotation of fewer provincial and municipal bonds in American markets and more in Canada.

The over-all effect has been undoubtedly to create more of an easy-money policy in Canada, and has forced our monetary authorities to follow more of an expansionist route. The continued pegging of our foreign exchange rate has, along with other things, improved our foreign exchange position, but apparently not enough to induce our monetary authorities to remove or reduce the rate, or return it to a freely fluctuating exchange rate, and it is not projected that they will change it in the coming year. In addition, Canada has continued for another winter the \$500 subsidy per house start. This incentive, instituted a year ago to reduce winter unemployment and even out the employment pattern, appears to have aided in reducing seasonal unemployment and may have been one factor in reducing total unemployment.

The effects of the United States tax cut were not as great as was projected in that economy; however, many of the benefits had been anticipated, and thus the effects were more evenly spread. The tax cut, of course, has now materialized and undoubtedly the current and projected buoyancy of that economy is in part due to the effects of the tax cut. The tax increases talked about for Canada a year ago were not enacted and indeed Mr. Gordon, our Finance Minister, is now talking of substantial tax cuts for Canada. If these materialize, the short — and long — run effects on the Canadian economy will undoubtedly be favourable.

The favourable conditions projected for the general economy in the year ahead will not, unfortunately, have a great impact on Canada's agricultural community. The total demand for farm products in our domestic economy is not projected to increase by more than an amount equal

to the population growth rate, namely 2 per cent. The low-income elasticity of demand for agricultural products essentially neutralizes any population or income effect that is generated in the non-farm economy. Thus, while gross national product for non-farm producers will increase roughly 6 per cent, it could at best only average an increase of 2 per cent for farm producers; and because of the adverse position of some major farm products, it is anticipated that gross national product to the farm sector will not increase at all. Individual farm commodities, however, experience differential growth rates, and certain commodities — those enjoying export markets — have their economic base geared to the world economy, where population growth as well as income growth will be effective in stimulating demand.

In Table 1 we summarized data concerning certain selected economic indicators. Therein you will note that Canada's population has continued to increase until it is now over 19 million, and is projected to increase roughly 2 per cent more in the coming year. The labour force has grown over a million in the last ten years and now stands at 6.9 million and will undoubtedly pass the 7 million mark in the forthcoming year. Unemployment levels during the past year, averaging 5 per cent, while considered to be high in comparison with other economies, actually represent a decline to early 1950 unemployment levels. Industrial production is now over twice that achieved in 1949 and gross national product is expected to exceed \$46 billion in 1964. Monthly average exports exceeded imports by \$100 million a month in 1964. When one adds to this the invisible transactions, the change in our foreign exchange balance is readily explained. Until 1962 visible import items exceeded export items. All this growth in our economy has been achieved with surprisingly small price increases. The general wholesale price index has gone up roughly 1.2 points or less than 1 per cent and the consumer price index has gone up 2 points or a little under 2 per cent in 1964. Personal disposable income per capita passed the \$1600 mark this year, and a further increase is projected for 1965.

Farm Business Situation

CANADIAN farmers in 1964 again faced a situation in which farm costs, both those involved in production and in family living, have gone up relatively more than have the prices that the farmer receives for farm products. The bundle of farm products which the Canadian farmer sold for \$100 in pre-war years is now bringing about \$248 (see Table 2). In 1963 this bundle of farm products brought \$259. This kind of price increase would represent a sizeable improvement in farm income if costs had

remained constant. If costs had risen only as fast as the prices of farm products, the farmer would not be worse off. Unfortunately, neither situation has prevailed. The Canadian farmer in 1964 has had to pay \$307 for the bundle of goods and services that he could buy for \$100 before the war. In terms of production purposes, his 1964 income dollar was worth only 80 cents in comparison with its pre-war value. This means that the remaining 20 cents has to be made up out of increased efficiency or taken out of the farmer's living.

Taking such an adjustment out of living costs has not been too easy for these costs have risen too. For 1964 it would take \$241 to buy the basket of goods that a farm family could have purchased pre-war for \$100. Twenty dollars of pre-war production cost values would have been equal to a reduction of \$48 in the farm family's 1964 living level. On the whole, both production and business efficiency have improved in Canadian agriculture, but farmers who have been unable to overcome the cost-income price disadvantage have suffered a setback in their standard of living.

Prices said by farmers (farm costs) have outrun prices received by farmers in recent years, but this price disparity has not been borne equally by all farmers.

TABLE 2
Comparative price indexes affecting the Canadian farmer in his business.

Period	Prices Received for Farm Products	Prices paid for items used in Production	Family Living
	Farm Products	Production	Living
1935-39	100	100	100
1951-55	258	238	204
1956-60	242	262	215
1961	261	282	224
1962	272	291	228
1963	259	299	237
1964p	248	307	241

p—Preliminary, based on the period, January-August.
Source : Dominion Bureau of Statistics.

Table 3 and figure 1 indicate that cost-prices of items used in production have not all changed alike. Farmers engaged in lines of agricultural production that have required more of the inputs that have risen most in price have suffered the greatest disadvantage.

INDEX Nos.
(1935-39 = 100)

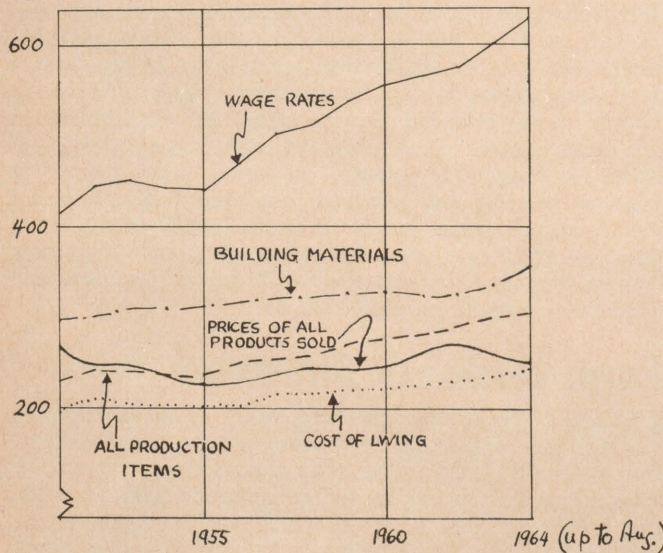


FIGURE 1
Prices received by Canadian farmers for products sold, and prices paid for items used in production and for family living. (Index numbers: 1935-39 = 100).

Costs have gone up as much as 10 per cent on some groups of items this past year. Building materials in 1964 are 3½ times as high as before the war. A day or a month of farm labour costs 6¼ times as much in 1964 as before the war. Fertilizer appears to be the best farm buy; its price is only up 2 times pre-war. In pre-war buying power the farmer's 1964 income dollar was worth 40 cents for hired labour; 69 cents for building materials and maintenance of buildings. Aside from marketing considerations, the cost situation alone would discourage the expansion of such a business as dairying wherein expansion is an important means of gaining efficiency. Any labour-intensive farm business would be strongly discouraged because of the relatively greater rise in costs of this factor.

Extensive crop-producing farm businesses; on the other hand, have been more favourably situated vis-à-vis costs. The pre-war buying power of the farmer's 1964 income dollar for power and farm machinery amounted to \$1.13; for seeds it amounted to \$1.15; for commercial fertilizer it amounted to \$1.22. Thus the cost-price squeeze has been easier on such things for these farmers. Direct costs of government services and financing have likewise not risen as fast as other costs nor as much as farm prices, and thus such items are a better buy today than they were pre-war.

TABLE 3
Price indexes of equipment and materials used in Canadian agriculture.

Period	Farm Wage Rate	Building Materials	Machinery Fuel and Lubricant	Feed and Seed	Fertilizer	Hardware and Binder Twine
	Rate	Materials	Lubricant	Seed	Fertilizer	Twine
1935-39	100	100	100	100	100	100
1951-55	438	305	173	216	105	261
1956-60	516	323	195	196	186	230
1961	566	324	209	203	195	242
1962	576	326	213	226	194	241
1963	601	334	215	219	202	259
1964p	628	358	220	216	204	295

p—Preliminary, based on the period January-August.
Source : Dominion Bureau of Statistics.

Farmers, like other Canadian consumers, have watched the purchasing power of the dollar decline. In 1964 it would take the average Canadian family \$135 to buy what \$100 would buy in 1949, and it would take \$217 in 1964 to buy what \$100 would buy pre-war. Thus prices of goods and services that Canadians consume have gone up and the purchasing power of their dollar has declined. Table 4 summarizes this data and indicates that those goods and services concerning health, recreation, and transport have gone up the most. For 1964 one would need to expend \$153 to buy the package of health, recreation, and transport services that he could buy for \$100 in 1949.

Wheat and Wheat Flour

CANADA HAS just completed harvesting another large wheat crop. It is not as large as the record crop (703 million bushels) of 1963, but still 573 million bushels is the fourth largest wheat crop in Canadian history. These two large crops have come at a time when our export commitments were high, and while our carry-over was high at the beginning of the 1963 season, large and favourable export contracts with Russia and China have removed the price-depressing elements that such inventories and large crops might otherwise have. The price to Canadian farmers in the 1963-64 crop year averaged \$2.03 per bushel of Number 1 Northern in store at the Lakehead. Thus Canadian wheat farmers have enjoyed two of

the best years in their history with high yields and high prices. They may be expected to expand their acreage further in 1965; there is no obvious reason and no obvious

TABLE 4
Canadian consumers' price indexes

	<i>All</i>	<i>Food</i>	<i>Health</i>	<i>Tobacco</i>
<i>Period</i>	<i>Items</i>	<i>Housing</i>	<i>Recreation</i>	<i>and</i>
		<i>Clothing</i>	<i>Transport</i>	<i>Alcohol</i>
1949	100	100	100	100
1951-55	116	114	118	109
1956-60	124	119	138	112
1961	129	123	147	116
1962	131	125	149	118
1963	133	128	151	118
1964p	135	130	153	120
1964/1935-39*	217	210	241	199

p—Preliminary, based on the period January-August.

*Estimated for 1964 on the basis of 1935-39 = 100, by dividing the 1949-based figure by the simple average of the years 1935-39.

Source: Dominion Bureau of Statistics.

government policy to discourage increased production in 1965. In 1964 farmers planted an all-time high level of 29.7 million acres seeded, and averaged a little over 20 bushels per acre on this seeded acreage. Total supplies during the forthcoming year represent declines from the previous year because stocks and production were lower, namely 1056 million bushels or 13 per cent less than the crop year 1963-64.

The only ominous element in this seemingly bright wheat picture is changes in United States wheat pricing and export policies. The United States has recently negotiated wheat sales to Russia, their first sale since World War II. While the United States has not entered the Chinese trade as yet, they may do so. The European Common Market prospects do not lend much hope for expansion; however, agreements with mainland China, certain Eastern European countries, and Japan assure a heavy movement of wheat to these markets, and the experts predict an export of 375 million bushels of wheat and flour. Our own internal utilization amounted to 156 million bushels in 1963-64. While this represented a 13 per cent increase in utilization over the previous year, it is only equal to the previous 10-year average. Apparently wheat consumption per capita is steadily declining.

The dire predictions of changing United States wheat pricing policy of a year ago did materialize in part; the exact price effects internally and externally are not at all clear. The national average support price for the 1964 crop is \$1.30 per bushel plus domestic and export marketing certificates for those farmers who complied with their allotments. Open market prices in the United States and in the world markets have declined; however negotiated prices under which most grain moves, exceed the prices prevailing in the open market. World wheat production in 1964 is estimated at a record level of nearly 9 billion bushels of relatively high quality wheat. This is substantially ahead of a year earlier; therefore, there will be undoubtedly some downward price pressures. We predict a wheat price lower than \$2 per bushel for Number 1 Northern in store at the Lakehead. Initial payments will remain constant at present levels, however final payments will fall. The expanding world population rising world incomes and the demand for grain for storage to replenish some of the drain of recent years affect demand. The apparently bountiful Russian wheat crop may reduce the demand from that nation for grain supplies; however, wheat supplies will still be needed by China. The demand in both of these countries for storage supplies, increased

consumption based upon increased income and population is outrunning their own ability to meet domestic needs. Thus Canada may expect some continuing demand for wheat products in these countries. The European Common Market agricultural tariffs have been and are such that our wheat and flour market there has been and is likely to be curtailed in the short-run. However, the longer-run prospects in that market appear favourable. Our wheat market in Japan and certain eastern European non-Common Market countries has been growing and is projected to continue to grow in 1965 and beyond. The prospects for growth in domestic demand or growth in United States demand are not great, and therefore we do not project much benefit from this source.

In summary, the wheat market picture has been very bright the past two years and while the projected future is not quite so buoyant and bright, wheat prices and wheat farmers' incomes may be expected to remain at profitable levels. We would be remiss, if we did not also add, that the weather must cooperate; we have assumed average yield responses.

Coarse Grains

OATS, BARLEY, and other coarse grains acreage in Canada declined somewhat in 1964 due largely to the increased wheat acreage. Coarse grain yields, too, were down with the exception of corn, resulting in substantially lower total production of coarse grains. However, the total supply of feed grains is not much less than a year earlier thanks to relatively high carry-overs. The price situation for such feed grains is expected to remain favourable because of the feed grain demand generated by a national livestock herd and national poultry flock that are both at near peak numbers. Also, the United States corn crop is 500 million bushels below a year ago and our own feed supply situation is under that of a year ago.

While the price situation on feed grains is favourable, we do not project an upward swing in acreage for two reasons: one, Western Canadian farmers are likely to continue to increase their plantings of wheat rather than decrease them; any increased wheat acreage will be at the expense of coarse grains; and, two, Canada has further fortified its feed grain transportation subsidy programme and the effects of this are in all probability likely to drive more coarse grain acreage out of production in eastern Canada rather than attract additional acreage into production. Therefore, the outlook for feed grain production and prices next year is as follows: decreased acreage and undoubtedly stronger prices, particularly if the supply situation and the agricultural pricing in the United States doesn't appreciably change.

Oats

In 1964 Canada's 8.3 million acres of oats produced 354 million bushels, which is roughly 100 million bushels less than the previous year. However, the carry-over position is such that total supplies on hand are 70 million bushels less than a year ago. Our exports have been running under 5 per cent of our production and it is not likely that exports will increase considerably. Even if exports were to double, our oat position would remain satisfactory. Freight-assisted shipments of western oats into Eastern Canada and British Columbia increased by 6½ million bushels this past crop year, bringing the total of such assisted oat shipments to 34.8 million bushels. The farm price for oats has been hovering at 67 cents. The price per bushel basis in store at Fort William-Port Arthur hovered at 75 cents this past year and is projected

to average 2 or 3 cents higher in the coming year — a return to 1962-63 price levels. Such oat prices are not likely to prove an incentive for western Canadian farmers to expand their acreage at the expense of wheat, and as long as feed grain subsidies act as a price deterrent in eastern Canada, it is unlikely that eastern Canadian farmers will have any incentive to expand their oat acreage. The continuing feed freight assistance policy will have the effect of driving more and more eastern acreage out of feed grain production.

In summary, the prospect for oats in 1965 will be for slightly less acreage, probably less production, although that depends somewhat on the weather, and slightly higher prices.

Barley

The great bulk of Canada's 5.5 million acres of barley is concentrated in the Prairie Provinces. Total barley production was 165 million bushels this year. Seeded acreage in 1964 was down and yields were also down, thus production plus carry-over indicates a visible total supply of close to 282 million bushels, roughly 28 million bushels less than a year ago and 40 million bushel less than the previous five-year average. Exports amounted to 47 million bushels this past year, 25 per cent under the previous five-year average. The export position for this crop appears strong. The internal demand for barley has also been strengthened because of the short crops of other feed grains, particularly the substantially reduced American corn crop. However, the effect of all these factors taken together, while suggestive of price strength, is not likely to induce expanded plantings. Indeed, we would predict a further decline in barley acreage, the decline being attributed to the strong position of wheat at the present time. Farm prices for barley averaged 94 cents in 1962-63 and feed barley averaged \$1.11 per bushel in store at Fort-William-Port Arthur in 1963-64. Barley movements under the feed freight assistance policy increased from 23.7 million bushels in the 1962-63 crop year to 32.6 million bushels in the 1963-64 crop year. Again such subsidized grain movements will discourage rather than encourage feed grain production in the eastern provinces. Therefore, we predict for the coming year decreased acreage, lower production, and slightly higher prices.

Corn for Grain

Corn acreage increased from 552 thousand acres in 1963 to 660 thousand acres in 1964. A substantial part of the increase occurred in Ontario; indeed, 650 thousand of these planted acres were in Ontario. Production appears to be up substantially and is estimated at 52 million bushels in 1964 compared with 36 million bushels a year earlier. Nearly all of this corn is consumed in Canada and in addition, of course, in recent years we have imported an amount equal to Canadian production. However, due to the increase in Canada's own corn crop and the substantial 500 million bushel decrease in United States corn production, it is likely that imports may decline somewhat. The average farm price for corn was \$1.28 in 1962-63. However, buying prices f.o.b. Chatham, Ontario averaged \$1.43 in 1963-64. Technological changes in corn production as well as the supply and price position vis-à-vis corn and alternative feed grains are likely to act in such a manner as to encourage the growth and spread of grain corn production in Canada in 1965 and the years ahead. We predict increased acreage and increased production. The price of corn in Canada is much more likely to be geared to United States supplies and prices and it is

difficult to predict what will happen here except to observe that the United States has very substantial supplies of grain in storage under the Commodity Credit Corporation. Even though they have experienced a very short corn crop, prices are not likely to rise substantially.

Mixed grain acreage amounts to roughly 1.4 million acres in Canada. This acreage has not changed much in recent years, nor has the yield of grain which amounted to 65 million bushels in 1964. We do not project any particular change in this acreage or the production from it in the forthcoming year. Rye acreage has been similarly stable. Such acreage is largely confined to the western provinces and production this past year on 680 thousand acres was 12.3 million bushels, no appreciable change from the previous year. Next year is projected to be similar.

Livestock and Red Meats

TOTAL RED MEAT production in Canada in 1964 is expected to exceed 2.27 billion pounds, an increase of 9.6 per cent over the 1963. Both hog and cattle slaughter increased 10 per cent and veal production increased 6.5 per cent. Sheep and lamb slaughter, on the other hand, dropped 5 per cent compared with a year earlier. Both hog and cattle slaughter are at near record numbers. Hog slaughter has averaged 134,900 per week and cattle slaughter has averaged close to 45,700 per week. At this juncture, it would appear that 2,386,000 head of cattle will be marketed in 1964, the highest yearly record to date, exceeding the previous high of 2,299,000 head in 1963. These large movements, of course, are in response to the record high build up of cattle numbers in Canada.

Accompanying the large slaughter has been an increase in the domestic consumption and disappearance of red meats, with 6 per cent more moving in 1964. Beef consumption is expected to reach a level of 1.26 billion pounds in 1964, an increase of 8.7 per cent over 1963, a record disappearance. Pork consumption has increased to 908 million pounds compared with 875 million pounds a year earlier, an increase of 3.8 per cent.

Although retail meat prices have fallen somewhat, prices have varied. Retail pork prices have remained consistently below those of a year ago, while beef prices last spring were above the level reached the previous spring, but at other times throughout the year have been lower. It is anticipated that retail prices for both pork and beef in the year 1964 will average below those of a year earlier. Both beef and pork supplies in 1965 will be plentiful. Beef production undoubtedly will be up, perhaps as much as 2 to 4 per cent greater than in 1964. However, this is about in line with recent year to year gains in beef demand due to population growth, higher incomes, and growing consumer preference for beef. Therefore, retail beef prices are unlikely to average less than those realized in 1964. Pork prices, on the other hand, have averaged less than the previous year, but have held up reasonably well considering the substantially increased supplies of both pork and beef available in 1964. 1965 price prospects are generally slightly higher for pork due in part to normal year to year gains in pork demand, projected minor increases in production in Canada, and substantial decreases in pork production in the United States.

Hogs

THE CANADIAN hog production picture is still significantly affected by the ever-present operations of the Agricultural Stabilization Board. For the fourth year in a row, the average national price has exceeded the national support level of \$23.65 per hundred weight. Hog production

(hogs on farms) was up 7.9 per cent on June 1, 1964 compared with a year ago, and hog marketings were up 10 per cent over a year ago. Prices, while averaging less than a year ago, appear to be holding at reasonably favorable levels. Undoubtedly this is due to the buoyant income position of the non-farm economy which has enabled the consumption and disappearance of a 10 per cent increase in hogs, even in the face of a similar increase in beef supplies. The hog production increase has been largely concentrated in the West, where numbers in Saskatchewan increased nearly 20 per cent, closely followed by Alberta and Manitoba. Numbers of hogs on farms actually decreased in Quebec. However, one should note that Quebec in recent years has risen to the number two province in hog production on the basis of hog marketings in 1964. Eastern Canada produces roughly two-thirds of our hogs and the West one-third. Eastern Canada expanded its hog production substantially in 1962-63. This expansion came to a halt in 1963-64 when the West began its build-up, probably in response to favorable feed supplies and favorable prices.

Hog production reached a peak in the United States this past year and of course prices have been low and unsatisfactory. Plans to breed and farrow there have been substantially adjusted downward so that one may anticipate a reduced Fall and Spring hog crop in the United States, perhaps as much as 7 per cent below 1964. On the other hand, in Canada there has been an increase in 1964 fall hog farrowings and expected increase in Spring farrowings implies an increased hog production in 1965. Cattle production and slaughter will likewise be up, however, the price and income implications for hog producers are not serious. As Canadian Hogs move into international trade, particularly to the United States, some of our pork production will be marketed there in response to the expected higher prices in that market. Further, we may anticipate a buoyant non-farm economy with higher incomes and further population growth is imminent, thus the year to year gains in pork demand through population and income growth, coupled with the other factors mentioned should result in a reasonably strong demand for hogs, 1965 prices while somewhat weaker than those realized in 1964, are projected to average higher than the national support level of \$23.65.

Beef Cattle and Calves

CANADA AGAIN SET a record in cattle numbers in 1964. Cattle on farms June 1, 1964 exceeded 12.8 million head. This represented a 4.2 per cent increase over the previous year; however, the increase was only a modest 1.1 per cent in Eastern Canada and 6.8 per cent in Western Canada. Dairy cattle comprise roughly two-thirds of our national cattle herd; beef cattle number 3.7 million head. Beef cattle numbers increased 8.3 per cent this past year; the increase was 3.6 per cent in the East and 9.6 per cent in the West. Expected slaughter of cattle this year is 8.7 per cent over a year ago, and it is anticipated that this heavy slaughter will continue as the nation's farmers make an attempt to adjust beef supplies to demand. Prices have decreased this year, particularly for feeder cattle, and downward price adjustments were even more substantial in the Fall of 1964. Marketings are likely to continue at currently high rates as farmers adjust their inventories.

The outlook for 1965 is due for some leveling off in the production of meat and cattle; however, the total supply will probably exceed by 2 to 4 per cent that available in 1964. Beef herds have been heavily culled and to some extent liquidated due to lower prices and diminishing returns, but the full adjustment has not occurred partly due to the continuation of above average feed and pasture supplies in most

areas. Any down turn in these favorable physical conditions will surely bring additional herd adjustments.

The Canadian cattle situation has not been aided in any substantial way this year by export movements. Indeed the peak cattle numbers and thus relatively large beef supplies in the United States have resulted in low and unsatisfactory prices for cattle producers in that country. American cattle moved in substantial numbers into Canada for slaughter in June of this year. Prices for good and choice cattle in Toronto maintained a \$4.25 per hundred weight differential above those in Chicago. However, since June, prices moved downward in Canada and slightly upward in the United States in such a manner that slaughter cattle have moved from Canada into the United States in the fall months of 1964.

Feeder cattle prices in the fall months of 1964 were considerably lower than a year ago, and the price differential between feeder and fed cattle is substantially greater. Feed lot operators in Canada apparently have been able to bid feeder cattle and calves away from possible export to the United States, and thus our exports of such feeder in 1964 were only one-third that of a year ago. Movement of feeder calves from Western to Eastern Canada increased 55 per cent during this period; that is, 85,000 head moved in 1963 and 137,000 moved east in the first three-quarters of 1964.

A review of the cattle figures suggests that dairy cattle numbers at least have stabilized, while even in the face of unfavorable prices, beef cattle numbers have increased and are expected to continue increasing. The United States picture suggests a slight decrease in beef cattle numbers. This should introduce a measure of price strength and price stability in that market, thereby permitting the modest expansion plans of Canadian beef producers to occur without substantial unfavorable price repercussions. Prices on feeder cattle have been lower this fall than has been the case for a number of years, and it is projected that perhaps a modest \$1 or \$2 per hundred price rise may occur by the fall of 1965.

Canada's feedlots are full of relatively low-cost feeders. The prospects for finished cattle prices are not any better than a year ago, but feed lot operators in general have less invested in their feeder cattle. While feed prices are slightly higher than a year ago, the net balance is more margin for the feedlot operator. Beef slaughter has been high this year, but even a recurrence of such a rate in 1965 is not likely to reduce the nation's cattle herd, indeed a further 2 to 4 per cent increase is projected.

Marketings of veal calves increased slightly this year. Total production ran 5 million pounds above a year ago. Exports to the United States increased substantially. Veal prices in general were slightly lower. With the national dairy herd remaining relatively constant, we expect that veal production from this source will not change appreciably. However, some veal may emanate from non-dairy sources in response to lower prices for feeder cattle. Therefore, we project slightly higher veal supplies in 1965 with prices similar to those realized in 1964. The seasonal price pattern will continue as has been the case in this market.

In summary, we project continued weakness in the nation's cattle markets until the fall of 1965. Finished cattle marketed through the coming winter and spring months will be sold at levels roughly approximating those of a year ago. Prices of feeder cattle and cull cows are low now, but these prices should strengthen by spring with the normal seasonal rise in demand for cattle to put on grass. Prices for feeder cattle in the fall of 1965, at this juncture, do not appear to be much higher than those expected this fall. Perhaps a dollar or two might be expected because it is

anticipated that feed lot operators will realize better margins on this winter and spring feeding operations. Net returns in cattle production, of course, depend not only on favorable cattle prices, but also on costs. Elsewhere in this outlook, we have predicted some slight increase in feed grain costs, due to decreased supplies and the likelihood that coarse grain plantings will decrease rather than expand in 1965. A significant change in the United States cattle and feed situation could affect our forecast and any further manipulation of the value of the dollar would similarly affect cattle prices.

Dairy

TOTAL MILK production in Canada in 1964 will not show much change from the 18.4 billion pounds produced in 1963. A cursory review of demand and supply factors affecting dairy production suggests that production will remain roughly the same in 1965. The average value of all milk produced on farms rose 3.7 per cent to \$3.36 per hundred weight in the first six months of 1964. This overall increase in returns to dairy farmers was a result of an increased allocation to fluid milk and higher prices for milk going into cheese and dry skim milk production.

The Canadian dairy herd has continued its modest downward decline. Canada now has 2.9 million cows, a drop of less than 1 per cent from a year previous, but this is in line with a trend that has been going on for many years. The national cow herd averaged 3.1 million cows in the 1952-56 period, dropping to 3 million cows in the 1957-61 period. Thus we appear to be decreasing our national cow herd by roughly 20,000 cows a year. However, production per cow has been increasing at a little less than 1 per cent per year. The decline in cow numbers and an increase in production per cow have offset each other, leaving total milk production unchanged. While the national dairy herd has been declining in Canada, one should note that dairy cow numbers have been increasing in the Province of Quebec. Quebec now has 100,000 more mature cows than the Province of Ontario, and Quebec is now the leading dairy province in the Dominion. We have noted elsewhere that population is increasing at close to 2 per cent per year, thus per capita consumption of milk and dairy products in Canada is declining. The same characteristic, namely declining per capita milk consumption has been observed in the United States.

Fluid milk and cream sales in the first half of 1964 increased 2.6 per cent, thus 27.9 per cent of all milk produced in Canada goes into fluid sales. The increase in the utilization of fluid milk can be attributed to the generally buoyant economic conditions in the economy and population increase.

The rise in total fluid milk consumption was achieved at the expense of decreased utilization of milk on farms and in dairy and creamery butter. Creamery butter production declined slightly, approximately 2 million pounds below 1963. Consumption of creamery butter, on the other hand, appears to have increased, and if the utilization trend continued through the latter months of 1964, consumption will reduce stocks on hand roughly 15 million pounds. Thus a modest increase in consumption plus a substantial increase in exports will reduce our butter stocks position this year compared with last.

Cheddar cheese production has increased again. Cheddar cheese manufacture utilizes 8.6 per cent of the milk supply, or a total of 1.6 billion pounds of the 18.4 billion pounds of milk the nation produces. While Ontario is still the leading cheddar cheese producing province, producing 75 million pounds, Quebec has been moving up rapidly and

now produces over 58 million pounds. Cheese prices have been higher this year and in the main prices have been substantially above the federal support price of 32.4 cents per pound for cheddar cheese. It is estimated that the average price for first grade Quebec white cheddar was 36.1 cents in Montreal, and Ontario prices averaged higher. Cheese for the British export market cleared at about 38 cents per pound. Domestic consumption of cheddar has continued high, roughly 107 million pounds, and exports may reach 30 million pounds. Other uses of milk such as that going into fancy cheese, cottage cheese, ice cream, evaporated and dried milk products all slightly increased in production this year, and prices were slightly higher. Thus the overall demand situation for milk has been good.

The only troublesome spot in the dairy picture at the present time is the exceedingly heavy stocks of butter that have been accumulated under the Agricultural Price Stabilization program. These stocks continue at a high level and while a modest increase in consumption of creamery butter occurred this year, it would take more than 10 years to use all our surplus stock at present production and domestic disappearance rates. It would appear that the only solution to this excessive stocks position in butter is by a domestic or international fire sale. Indeed, fire did decrease our stocks position this year.

Dairy price and income support policy did not change particularly in the past year. Ontario producers are still awaiting the report of Professor Hennessey's Milk Industry Committee. The national dairy conference of a year and a half ago appears to have resulted in certain modest changes at that time, but no really significant changes have been effected.

The changes in May of 1963, namely, a change in subsidy arrangements, might be attributed to results of the Conference, but other than that, no national changes have been made. Of course, there have been Provincial Marketing Board and minor provincial administrative changes. This has been particularly true in the Montreal Milk Shed. While the change was such that it did not immediately increase the price of fluid milk, it will certainly have the effect of increasing the blend price over time on milk produced in the Montreal Milk Shed.

The cost position of dairy farmers worsened slightly this year. That is, feed and other costs have increased slightly. The secular decline in the consumption of butter and dairy products suggests that the future of the dairy industry will continue to be difficult unless adjustments are made. We believe these adjustments can be made if much of the restrictive institutional arrangements that shroud the industry could be removed. There are excess resources in dairy farming, particularly excess human resources, but this is a problem of agriculture in general, and one that could be solved by forthright and effective action at both the federal and provincial levels. The dairy industry could proceed in making adjustments if restrictive preferential arrangements for fluid milk producers were removed. There is no economic logic for two-price milk of similar quality. The quota system characteristic of Canada's raw milk markets inhibits farm size and herd size adjustments and promotes the production of excess milk. Fluid milk pricing remains as one of the main offenders contributing to the production of excess milk. Butter price levels continue to price butter out of the market while at the same time encouraging the maintenance of excess resources in the production of butterfat. Gradual downward adjustments in butterfat prices would reduce rather substantial federal outlays under the Agricultural Price Stabilization Act, would lower manufacturing milk prices, and would encourage the diversion of milk now used in butterfat production to other uses, and encourage the shift of these resources into

activities other than dairy. Artificial price enhancements will never solve the long-run adjustment problems needed in this industry.

Canada is experiencing rapid economic growth. The essence of this type of economy is change; hence it must be able to adjust to changing prices and relative prices, to new technology and new institutional arrangements. All segments of the milk industry need institution arrangement and an economic environment that permit as much flexibility and freedom to act as possible. The status quo cannot be maintained if we are to continue to enjoy the benefits (and some of the problems) of economic progress.

Dairy farms are an important segment of Canadian agriculture. Farming is characterized, unfortunately, by a large percentage of farmers receiving substantially less income than people with similar skills in the non-farm sector. Because of the peculiar nature of its economic growth, there are too many people working in Canadian agriculture for the returns realized, a fact which largely explains the low income these people receive. Thus the hard core of the Canadian farm problem is the surplus of human effort committed to farming. In the kind of economic growth characteristic of the North American economy the demand for farm products increases slowly, while the improvements in the quality of inputs continue to be important and are increasing production. Also the substitution of capital for labour has been instrumental in adjusting to a rise in earnings for human effort relative to the price of producer goods.

Our farm problem is not that of too much milk production, of too many cows, or of the high productivity of cows. It is not the 200 million pound mountain of surplus butter; such a stock is merely a matter of pricing. Things like butter surpluses give us something to talk about and distract us from considering the real problem — namely, excess human resources in agriculture. We should be addressing ourselves to aiding the dilemma of the people directly and not dissipating our energies on programs and policies that at best only distort and worsen the resource situation in dairy farming, in the dairy processing industry and in the nation without solving the basic farm problem.

The maze of regulations and institutional arrangements controlling Canada's milk industry has become its main problem. That is, our dairy processing industry is frustrated by rigidities, hampered by inflexibility and the unadaptability of the institutional arrangements under which the industry must operate. Today's rapidly changing technological and economic conditions demand facility in rapid adjustment. The industry must adjust to changes in consumer tastes, changes in the price of factors of production, changes in substitute products, in new technology, both in and out of the industry, and even to changes in government programs. We submit that in order to facilitate rapid adjustments in the best use of our resources (and hence in the best interests of the nation's welfare), the forces of the market should be allowed to determine what goods are produced and in what amount. The dairy industry needs fewer formal controls and regulations if it is to maintain its viability. Reasonably unfettered markets assure the free flow of resources into and out of production without endless government control and arbitration between resource owners and users.

The nature of our historic farm settlement pattern and economic environment has led to the development of many small dairy farms. Farsighted government policy now might well be directed towards aiding these farmers in consolidating and redirecting their resources. The ARDA program might direct some of its efforts toward providing dairy farmers with community type pastures that would essentially provide these farmers with the additional acreage and would make conversion to beef production feasible. The dairy problem of the next few years is manageable, but it

will require vigorous action from a number of different vantage points to resolve it. The key to the solution of the problem of this vast and important Canadian industry is to free it from the many restraints that have distorted the industry and prevented adjustment on the farm and in the factory. Our crystal ball indicates, unfortunately, that the planners, farm leaders, and even the processing industry leaders suffer from a peculiar myopia that, in the short-run at least, may lead us into more government intervention rather than less. Thus we predict things will get worse in the industry before they get better if the present trend to more government intervention continues.

Eggs and Poultry

EGG AND POULTRY production in Canada are again at near record levels, and prices, for the most part, have been low and relatively unfavorable. At this juncture, it would appear that egg production will hit 437.5 million dozen, up roughly 5 per cent over a year ago and in line with the 1957-61 average. This indicates that per capita consumption appears to be declining slightly; it is certainly not increasing. The buoyant non-farm economy with its population and income increases have not brought prosperity to egg and poultry producers. The best one can say is that things might have been a lot worse if the economy was not buoyant. Canada's egg and poultry producers have seen cost increases this past year in most of the factors they have used and their prices have been lower. Thus they have been caught in a cost-price squeeze. Undoubtedly this will lead to adjustments in the industry and higher prices in the main in 1965. However, our crystal ball suggests that these price rises will not occur until the fall of 1965.

Placements of egg production chicks were up in the early months of 1964, but there has been a considerable downward trend in placements since June. Due to the egg price situation it is expected this downward placement trend will continue through at least the early part of 1965. Thus the national laying flock is such that egg marketings through the first quarter of 1965 are expected to exceed those of a year earlier, and it will probably be mid-1965 before egg marketings fall below 1964 levels. Thus egg prices are expected to be below comparable 1964 levels in the early part of 1965 and then to strengthen in the late summer and fall.

The production of poultry meat reached another record high, 658.5 million pounds in 1964, 8 per cent more than the record of 1963. All categories were up except those of geese and ducks. Broilers, particularly, increased 11.3 per cent over 1963. Broilers now account for two-thirds of poultry meat production. Turkey meat production also reached a new high of 154.5 million pounds, 5.6 per cent over 1963. Although both broiler and turkey production appear to be setting new records in 1964, prices have shown remarkable stability. However, the heavy increases in production by the fall of 1964 were having a depressing effect on prices. The strong prices in the Canadian turkey market encouraged the importation of turkeys from the United States, indeed, producers have been attributing price weakness in the fall of 1964 to these imported supplies. The current expectation for broiler production is for a continuing build up and further price weakness is projected in 1965. Turkey production is changing with the emphasis moving towards light-weight broiler turkeys. The production of such turkeys increased 35 per cent this year. It is anticipated that this trend will continue. Turkey production is projected to increase again in 1965 with a continuing swing to broiler turkey and no particular strengthening of turkey prices is expected in 1965.

Feeding the Hungry Half of the World

by Dr. Rolland Poirier, Dean, Faculty of Agriculture, Laval University, Quebec City, P.Q.

THE FACTOR that will have the most significant impact on agriculture in the next 25 years is not always classified in the field of research even though it belongs there. It relates to the practical solution of the equation mentioned in my title.

The second variable of the equation, the growth in number of human beings, already exerts tremendous pressure. Furthermore, because of world communications, we are now sure of the fact that a large proportion of our brothers do not receive a minimum ration. A world conscience is now in existence, due to international or-

ganizations and this conscience will ultimately force us into action.

Man has actually the "know how" which can solve for today and for many years hence, the production part of our problem. He can also solve the physical problem of getting the food from where it is produced to where it should be consumed and this without important loss of nutritive value.

The equation cannot as yet be solved because the economics aspect has always seemed impossible to deal with. However, some new ideas are now brought forward by research workers and the riddle may sooner than we

think get a long term answer.

Some think that it is economically sound to invest large reserves of capital into transforming a customer that cannot pay for a product into a paying one.

If this concept and other new ideas prove to be sound, we will be able to attack in a practical way the solving of the equation. This will soon transform world agriculture from a depressed economical area into an activity in full expansion. Then, and only then will science be able to bring to agriculture its full impact.

Marketing of Agricultural Products is the Key

by Dr. Ernest Mercier, Deputy Minister of Agriculture, Quebec City, P.Q.

RESULTS OF research work carried out in the fields of chemical industry, biology, genetics, plant and animal breeding and farm machinery will have great repercussions on the agriculture of the next two decades. Greatest changes will likely occur in the field of farm structure (i.e., the nature of the farming unit) and the marketing of agricultural products.

Farm structure

The capacity of the farmer in the developed countries to feed himself and other people will keep increasing during the coming years. The number of people fed by one farmer is five times greater in Canada (32) and the United States (29) than in Russia (6). This greater efficiency of the farmer

of the Western world is due to the use of farm machinery and competent management of privately owned farms.

Emphasis will be on greater net income per dollar invested in larger family farms, and greater volume of production per man, per animal unit, and per acre of land. This demand for greater efficiency will favour the development of larger, economic, family farms, owned or operated by more than one farmer. Father-and-son agreements and family associations will be formed to permit the achievement of greater efficiency on the family farm and the gradual handing-down of the property to a member of the family.

Farm labour will soon be enjoying the same advantages and security as

industrial labour, namely: a) workmen's compensation, b) unemployment insurance, and c) adequate training.

If they want the well-managed family farm which can better preserve private enterprise and compete with the bigger, corporation farms, farmers will have to earn larger net incomes so that they will be able to retain their sons or hire good farm labour. Nevertheless, corporation farming is not developing as fast as anticipated on account of unionization of farm labour.

Marketing of agricultural products

The constant increase in the cost of services in the field of marketing of agricultural products will force the

producers to organize themselves in order to retain ownership of their produce on its way to the consumer's table as long as possible. Producers will endeavour to increase their bargaining power through contract farming and the establishment of powerful marketing boards and cooperatives, in order to get the best price from large-

scale buyers who are gradually becoming fewer and correspondingly more powerful.

In brief, the structure of the family farm will be modified to increase its efficiency and ensure the greatest net income, in order to maintain its supremacy in the world of food production. Farm labour organization

will slow down the development of large corporation farms and favour the development of well-managed family farms. The grouping of producers by means of marketing boards and cooperatives will help family farm owners to increase their bargaining power and obtain a larger share of the consumer's dollar.

More Mechanization Will Mean More Food

by Mr. A. A. Thornbrough, President, Massey Ferguson Ltd.,
Toronto, Ont.

THE IMPACT of research on agriculture will depend largely on need. This is likely to be "more food for more people". Notable changes will be through application of results of research that are known to us today. Application of new knowledge in this period of time, will be the exception. This is due to the time lag or length of the acceptance cycle.

A worldwide viewpoint is needed. Highly developed agricultural nations and communities must improve to not only maintain their standards, but assist under-developed areas during this period. Accelerated rates of growth and improvement can be anticipated in under-developed areas.

In a broad sense water (moisture) traditionally, and still is, one of the major problems in the world of agriculture. This can be too much water, too little water, or water of an unsuit-

able form. Water is a limiting factor in supporting population growth in many parts of the world. This immediately brings to mind de-salting water from the oceans and seas. Significant research is in progress in this area, pilot plants are in operation, limited successes are resulting, but the cost is much too high. Isolated areas are depending on de-salted water for human consumption. When one realizes under normal flooding methods of irrigation, water to a depth of 5 feet per acre is required to produce a crop of cotton in an arid country, the production of water by this method for irrigation purposes, is uneconomic but further research may alter this.

Research in conservation and efficient use of water should yield results. We must produce crops with less water in those areas where it is in limited supply. This brings into focus develop-

ments involving artificial mulches, plastic films and methods of conserving water through controlled evaporation; even plants that require less water for their life cycle.

Water or moisture in food and fibre products is one of agriculture's greatest problems. Drying the hay crop, the food grains to safe storage levels, the preservation of foods, by methods resulting from research shows promise.

Plant foods, fertilizers, particularly nitrogen, will be a growth area brought about by necessity. The opportunity to increase food production through research in this area with little or no increase in land areas, has only just started in world agriculture.

The role of the plant breeder or geneticist in modifying and improving our commonly known food and fibre crops, will undoubtedly offer a major contribution. The successful mechani-

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zation and mass production of our major crops today has benefited by physical changes in the plant through research. Many crop plants in the hands of the plant breeder have been reformed in a manner that permits mechanization and efficient production. The tomato plant, as an example, has been changed recently so that it stands erect, produces fruit of uniform ripeness and of a form that can be completely mechanized. We should see significant developments in this area.

Developments in the area of electronics, electronic computers, the ap-

plication of controls and systems, will make a contribution. Through the application of these devices, farming can become more precise and take advantage of the variables of nature. In the area of climatology alone there is much room for improvement to enable the farmer to make optimum use of the variables.

Mechanization and the use of power will see further refinement and improvement through research. This is based on the fact that man as a power unit is worth almost nothing as a

primary source of power and yet in the world today he is occupied to a high degree in this area. The application of power and machines in agriculture contributes in a very basic way —

- 1) to increase the productivity per agricultural worker;
- 2) to change the character of farm work making it less arduous and more attractive.

The net effect of these can and will make possible the production of more food for more people in the next 25 years ahead.

Atomic and Solar Energy Will have Impact

by Dr. R. Glen, Assistant Deputy Minister, Canadian Dept. of Agriculture, Ottawa

MUCH IS HAPPENING in research today that will have a major impact on agriculture in the next 25 years.

Enormous possibilities lie in the knowledge we are accumulating about the genetic code and its biochemistry. The ability to synthesize functional molecules of genetic material and to incorporate them into crop plants is virtually within our grasp. Twenty-five years hence we should be able to change many basic chemical processes in crops, weeds, fungi, viruses, and insects. This breakthrough should lead eventually to the production of crop varieties vastly superior in quality and adaptability and to new methods of

regulating the interaction of host and parasite.

We should be able to retain effective management of the pesticide problem. Greater use can be expected of the sterile male technique, of chemical and physical attractants to lure pest species to devices for their destruction, and of combinations of control methods including the judicious use of pesticides.

Current research in soil fertility, plant nutrition, and use of water is providing a broad base for more penetrating studies in the immediate future. Desalination of seawater, the combination of microorganisms with chemical fertilizers, and the use of hormones to control plant growth should lead to

immense increases in production.

The livestock and poultry industries are still to feel the full impact of artificial insemination and hybridization and of advances in forage production, feed preparation, and disease control.

Food research has revealed that vast amounts of protein can be extracted from green plants or synthesized by microorganisms from paraffin of which there is an enormous surplus. Storage and transport problems are being conquered by dehydration and irradiation.

Atomic and solar energy and a thriving technology are available to provide the additional energy, mechanization, and skills to exploit these and other potentials of future agriculture.

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Environmental Control . . . That's the Most Important

by Dr. W. A. Jenkins, Principal, Nova Scotia Agricultural College,
Truro, Nova Scotia

STATISTICS indicate that there are 150 new mouths to feed each day on this planet. We are told that the population of the world will be soon doubled from three billion to six billion people. We also learn that one-half of the present population of the world is suffering from malnutrition. It is, therefore, quite evident, and indeed necessary, that every effort be directed toward increased production of agricultural commodities.

The economic aim of science is to obtain knowledge to gain power or control. Therefore, it is predicted that agricultural research will be a major factor in helping to solve the problems of the developing countries, and in alleviating hunger throughout the world. More specifically, we look to the development of a highly proteinaceous plant or material to supply a low cost protein in lieu of the present and inefficient source which comes to us through cattle.

The Agricultural Engineer, who is working on more efficient methods of irrigation, will be a key figure in transforming agricultural technology of the future. One only needs to refer to work already done to realize the importance of such a research program. The areas of Ginza in Egypt and "The Desert" in California are just two examples of the value of such work and its effect on agriculture.

The one-gene, one-enzyme theory holds some possibilities of controlling plants through the genes. Further research may enhance or inhibit gene action, or indeed may replace genes by providing a chemical equivalent through mist or irrigation water. The chemical clocks (phytochromes), enzymes and flowering hormones are now being elucidated. The biochemist will undoubtedly be able to identify and synthesise these substances and explain their role in the metabolism of the plant.

As more knowledge allows more control, plant growth and flowering will, in many more cases, be controlled at will.

Plants grown on a large scale may be brought into flower uniformly to allow more efficient mechanical harvesting; or flowering may be cut off at a definite date. Blocks of one outstanding variety may be brought along at successive dates to spread out the harvest.

Seed production of biennial crops may be obtained the first season without affecting the biennial habit. Pasture plants may be brought into flowering or prevented from flowering.

Our main economic crops are relatively few. The chemical control of the growth and reproductive habits of any one of these will have a tremendous influence on the future of agriculture and food production.

by Dr. E. E. Lister, Nutritionist, Miracle Foods, Ogilvie Flour
Mills Co. Ltd., Montreal, P.Q.

THE KEY WORD in livestock and poultry production in 25 years will be "control".

Because of increasing costs of feed stuffs no wasteful process or condition will be condoned.

No disease condition will exist. Disease will be under complete control through the further development of specific drugs in combination with livestock and poultry bred for disease resistance or made free of disease organisms by isolation and surgical techniques.

Environment will be under much greater control in terms of lighting, temperature and humidity to promote maximum production using the minimum amount of feed. The effect of

low temperature on feed intake and the effect of the stress of high temperature on lowering production cannot be accepted in the future.

A new area of control will exist. It will no longer be enough simply to produce a dozen eggs or a pound of beef, pork or poultry meat. Through the use of physiological control agents, the amount and type of fat and the amount of protein in the end product will be at pre-determined levels to suit the demand for that product. At present, there are only slight indications of the potential in this field.

In terms of feeds, the balance of nutrients will become even more critical. General terms used today to describe feeds will be of no value.

Feed ingredients will be described in much more detail and specifications for rations will be set down for many more nutrients. Computer-formulation will not only be desirable from the standpoint of least cost as at present, but essential in terms of precise nutrient content of the ration.

Presently, it is possible to predict within certain limits the output of livestock and poultry operations. In the future, control of livestock and poultry production will be absolute so that this business will become as predictable as any other in terms of output per unit of input. This will permit the livestock and poultry industry to attract the necessary capital to meet the growing needs of our country.

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New Food Technology

**by Mr. T. B. Cooper, Vice-President, Kraft Foods Ltd., Montreal,
P.Q.**

ALTHOUGH FOOD can never be completely dissociated from agriculture, one finds it increasingly difficult to recognize many of the farm products when they reach the consumer. Over the past decade a consumer preference for highly specialized convenience foods has resulted in enormous strides, and the pace is steadily increasing.

Just what a shopper could expect to find on the food shelves in her supermarket at the end of the next 25 years might stagger the wildest imagination. It is a certainty that the difference between farm-produced products and consumer-purchase products will be much greater than at present, in spite of the wide differences now existing. This we know poses some big problems for agriculture. It is very hard for a producer of the basic raw material to reconcile the prices he receives at the farm with the much higher finished goods prices on the store shelves. In many cases the former is a mere fraction of the latter. Even a brief cost analysis, however, will show at once where this difference comes from. Because of stricter food laws, the processing of food calls for some of the most expensive equipment and buildings found anywhere in industry. Labour here also must not only compete with other industries, but is

requiring more and more highly skilled technical labour as food processes become more complicated.

Is all this necessary? The consumer answers this question for us with a resounding "Yes" by the reaction shown in the marketplace. Competition on the shelves of a modern store is intense to the extreme. No inactive product could hope to remain for more than a few weeks. It holds that as long as the consumer feels the price is right we can expect to see more and more built-in services. Nor is this a bad thing, even from the producer's point of view. His price share may be smaller but what of his markets. Where, for instance, would

the potato producer be if he had to depend once more only on the consumption of table potatoes without the multitude of highly processed potato products which grow by leaps and bounds each year?

In the dairy industry the processing and packaging of cheese, which made it available in convenient consumer packages, has raised the per capita consumption in Canada almost 4 pounds in the past 12 years.

One could go on and on with such examples.

In our opinion the next 25 years will show ever-increasing results of the highly skilled food technology which has developed in Canada as well as

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throughout the civilized world. New and better methods of processing food as yet unknown will become commonplace. Many other processes now well advanced in the proving Labs will be put into practical use. Perhaps the foremost among these is that of freeze drying. This process alone will enable a housewife to store at ordinary temperatures on pantry shelves a host of highly perishable meat and vegetable products.

We should not think, however, that the only radical changes will come in methods of processing and storing food. In recent times we have seen the perfection of the infra-red method of analysis which could very easily revolutionize the entire dairy industry from the producer's standpoint. There is strong likelihood that with this new method of analysis that milk will be paid for not on a butterfat basis, as

it has been in the past, but on the basis of protein solids. This would certainly result in many major changes.

Over the past 25 years agriculture has probably led all industries in the increasing use of chemicals in the form of fertilizers, fungicides and pesticides, as well as weed control. There is every likelihood that in the next 25 years this process may be reversed owing to the increasing awareness of the inherent dangers of many of these substances previously considered to be harmless. Naturally, this will pose severe problems until safe substitutes of equal value can be found. Over the next few decades I do not think it is safe to assume that the farm unit will continue to become ever and ever larger with fewer and fewer farmers, but it certainly is safe to assume that they will become more and more efficient, even on the smaller units.

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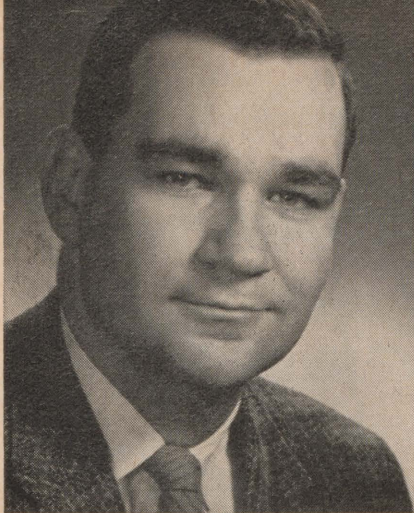
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POSTSCRIPT

THERE'S NO standing still today — you either plan for the distant future or else get out of business." A farmer from Quebec's Eastern Townships made this statement after he had read some of the articles in this issue of the Journal. His statement made us think that, like successful farmers, businessmen and professional people who must look ten years ahead in order to keep up to date, it is even more important for universities to look ahead and to plan for future generations. Universities after all, are an important part of the community and should provide the leadership necessary for the advancement of civilization.

In this special issue of the Journal, we have attempted to bring you a glimpse of Macdonald College in January 1965. It is not the same place it was in 1905 when it was surrounded by peaceful farm land. Today it is in a rapidly growing area near Montreal, divided by three major highways and two railways. Anyone travelling from east to west in Canada must pass through the campus. This year there could well be 1,000,000 cars per day drive by our doors. This of course has brought the college closer to the community it serves and the community closer to the college.

And now we too must face the future? How many students will be in attendance at Macdonald in 1967? Not even the best computer can answer that one. How many staff will be required and where will they come from? That is another question that puzzles the university.

But amidst all these unknowns, there is considerable discussion at the present time about the future role of Macdonald College.

There is a possibility that other departments with programs leading to a B.A. and B.Sc. in fields other than Agriculture and Home Economics will be established on this campus. This will be in addition to the present Faculties of Agriculture and Home Economics, Education and Graduate Studies. There is considerable discussion about a new curriculum for students in agriculture and home economics. There's even a hint of the need for a new name for the Faculty of Agriculture.

Yes, there's real change in the wind. Research-wise, Macdonald College will continue to search for unknowns and to find real truths in the field of bio-science. In future, every method of teaching known will be tried in an attempt to provide students with the best education possible in the time available. In extension activities a completely new field of community service by mass media, combined with residential workshops will bring the campus and the community closer together.

Yes, there has been a big change — but bigger changes appear to be just around the corner. There will be new staff, new buildings, new ideas and a new awareness by the community we serve that the human resource is really the most important.

If Sir William Macdonald could join us today, as we question ourselves and discuss our thoughts and plan for the future, he would, no doubt join in our enthusiasm in tackling the problems of the '80's.

Mark Walden

THE FAMILY FARM

PUBLISHED IN THE INTERESTS OF THE FARMERS OF THE PROVINCE

BY THE
QUEBEC DEPARTMENT OF AGRICULTURE AND COLONIZATION

Compiled by T. Pickup of the Information and Research Service,
Quebec Department of Agriculture and Colonization.

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Animal Health Division

PHOTOGRAPHS BY
OMER BEAUDOIN



The Maloneys represent a bit of Irish blood among Quebec's hardy stock.

STARTING A FAMILY FARM

JOHAN MALONEY acquired his farm of 112 acres at Thurso, Papineau County, in 1958 and enrolled in a farming contest in order to become familiar with new agricultural methods. His land is very fertile; crops do quite well on it with no other fertilizer treatment than manuring. In the fields where lime has been spread, alfalfa and clover yield two cuttings of forage. The commercial fertilizers which he will soon be starting to use will produce their full effect once the soil has been drained and worked up to a good state of tilth.

The crops, under a five-year rotation, occupy 96 acres including the arable pastures, which, in the near future, will be rejuvenated and fertilized in a separate cycle. There are 17 acres of rough land. Seven acres of corn will later fill up a 12' x 30' silo into which an early cut of clover had already been put at the time of our visit.

The livestock includes two work horses, five purebred Holsteins (a bull and four cows) and 21 grade cattle (16 cows and 5 heifers). The nucleus of purebred animals will provide a starting point for the improvement of the milk yield of the dairy herd by means of judicious choice of heifers backed by balanced feeding both in the barn and in the pastures. Recording of milk yields will provide a sound statistical basis for this improvement.

The buildings do not call for any special comment, apart from mention of the spacious garage with its well-equipped workshop.

Mr. Maloney holds the offices of director of Thurso Cooperative Society and the local fire insurance mutual. He is admirably assisted by his wife in the operation of the enterprise that they share. Mrs. Maloney, who is the mother of five lively young boys, manages her home remarkably well. To make her task easier, her husband has been most lavish in furnishing the home and providing all the household appliances one could wish for.

AGRICULTURE IN QUEBEC

*From a speech by Dr. Ernest Mercier,
Deputy Minister of Agriculture and
Colonization, to competitors in the
Provincial Ploughing Contest at Joliette,
October 1, 1964*

DURING THE LAST few decades, the net income of farms has not grown at the same rate as the value of their production. Basing calculations on prices received at the farm in 1949 (to allow for changes in the value of the dollar) we find, for example, that between 1935 and 1961 the value of Quebec farm produce increased by 185%, while farm income increased by only 75%. Briefly, production costs increased more rapidly.

In recent years, mechanization of agriculture has been largely responsible for the increase in production costs on the farm. For instance, between 1951 and 1961, capital investment in Quebec farms increased by 16%. But this increase was not evenly distributed. It amounted to 42% in the case of farm machinery and equipment and only 20% in the case of land and buildings. In other words, during the period 1951-1961, the farmers of this Province invested twice as eagerly in machinery and equipment as in land and buildings. Ontario farmers on the other hand showed the opposite trend, investing two and a half times as readily in land and buildings (increase of 81%) as in machinery and equipment (increase of 30%); the investment in land being mainly spent on tile drainage. Up to the present, Ontario has drained about one third (two million acres) of the six million acres

of arable land which are accessible to tile drainage in that Province.

To summarize, during the above-mentioned ten-year period, total investment per dollar of net income has risen from \$5.31 to \$8.51 in Quebec, and from \$5.91 to \$10.57 in Ontario. Quebec farmers have been investing mainly in machinery and equipment while Ontario farmers have been investing in land and buildings.

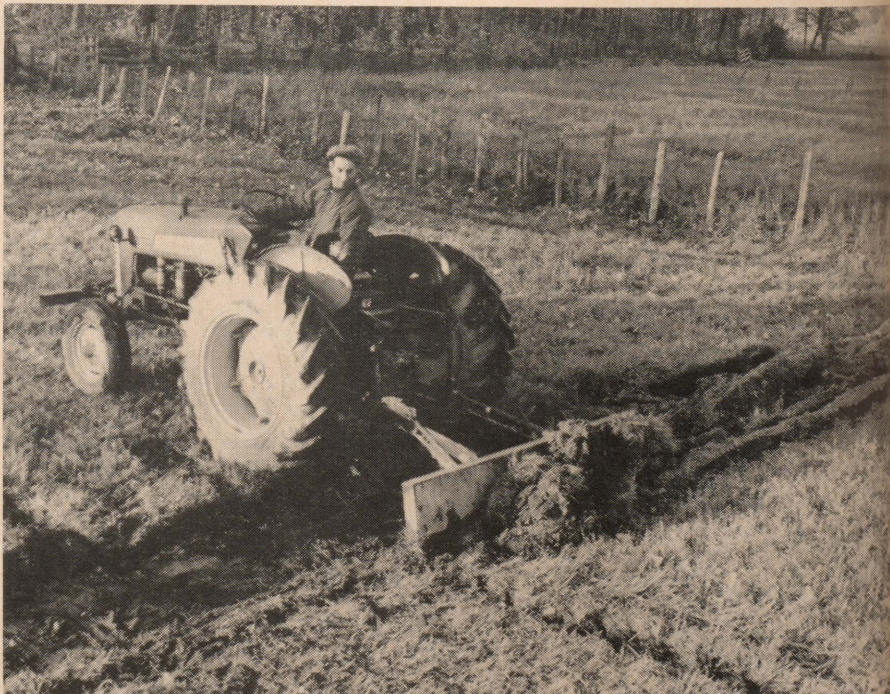
Profitability of Quebec farms

The authorities of the Department of Agriculture and Colonization have decided to adapt the agriculture of the

Province to the prevailing conditions of soil, climate, and markets, and to establish in every part of Quebec an optimum number of viable (economically sound) and profitable family farms.

To achieve its aims quickly, the Department is stressing in its advisory work the profitability of various crops and livestock. Recommendations to farmers about farm management are based on studies of possible and profitable increases in yield per unit, sound development of plant and animal productions, increase in scale of production, etc. The Department has form-

Mr. H. Gagnon finishes off a drainage furrow as the sun sets on his fields at St. Prosper, Champlain County. The Dept. of Agriculture and Colonization stresses the need for effective drainage of Quebec farms.



This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.

ed an advisory committee on farm management in Quebec, composed of representatives of the Government, the U.C.C., and the Faculty of Agriculture of Laval University.

Agricultural adjustment

Before recommending ways of making farms more profitable, advisers first consider whether an enterprise is really on a sound footing and can actually be made to pay. (A viable and profitable family farm is defined as one that provides enough income to support one and preferably two operators and their families.)

The time has come for many people who operate farms in Quebec to consider the returns they are getting for their investment in the land. In the long run it is the crops or the animals that eat them which must pay for the heavy investments in machinery and supplies.

Sometimes one wonders why more farmers do not make use of tile drainage, fertilizers, lime, and irrigation, especially in cases where they would certainly be so profitable that a prudent man need not hesitate to borrow in order to take advantage of them to increase his output. Some farmers may lack the necessary knowledge or skill, foresight, or initiative or may not be able to obtain enough credit to pay for such improvements. It is sure that agricultural advisers do not always give them enough explanation about the profitability or otherwise of different productions and the large financial investment that is often required to render farming profitable.

It would be absurd to talk about the profitability of crops without referring to the question of improving the physical and chemical condition of the soil, which in turn involves the use of lime, manure and fertilizers, and control of soil moisture.

Control of the moisture which influences soil conditions for all plants is indispensable to the success of crops — especially horticultural crops. It involves:

1. Surface drainage;
2. Tile drainage;
3. Irrigation.

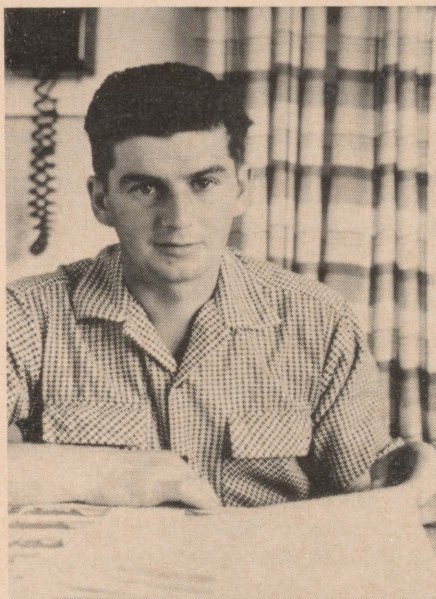
Sources of credit for land improvements

The committee concerned with agricultural policy has studied the financing of soil improvement projects in Quebec and has recommended that steps be taken to see that farmers are better informed of the numerous sources of funds available for such works as stone removal, levelling, surface drainage, and tile drainage. As regards long-term and medium-term credit, these sources are considerable.

Conclusion

The chief aim of the Department of Agriculture and Colonization is to raise the income of the farmers of Quebec. If this aim is to be achieved they must become more aware of the profitability (or otherwise) of their farms, invest money in land and other factors of production which can increase income rather than in machinery and consumer goods. In other words, readjustment of Quebec agriculture by means of proper farm management is an urgent necessity.

ESTABLISHMENT OF YOUNG FARMERS



Jean Pichette, St. Esprit, Montcalm County, who established himself near his father's farm in 1957. He has a diploma from the Agricultural School at St. Barthelemy and came first in a class of 60 for bronze medals in the 1963 Agricultural Merit Competition.

During the fiscal year 1963-1964, the number of young farmers being helped to settle themselves on the land through the Quebec government's agricultural establishment policy increased from 6,597 to 8,093 and a total of \$1,618,600 was paid in grants.

Financial aid under the policy at present consists of a grant of \$1,000 payable in five annual instalments to farmers between the ages of 21 and 40 who genuinely want to establish themselves on a paying farm in order to make their living from it.

Altogether, since the policy came into force, 51,202 young farmers have received \$19,885,700.

In applying the legislation in question, the authorities of the Department of Agriculture and Colonization strive to promote establishments only on farms that promise to be economically

sound and profitable ventures — taking into account the arable acreage, the nature of the soil, and available markets.

GOOD PIGS EARN MORE

What does a performance-tested boar have over a non-tested one?

He has statistics vital to a commercial crossbred swine producer aiming to operate at a profit.

They call these statistics "performance" in the trade. If good performance in a boar can be passed on to his progeny, the result should be:

Pigs using fewer feed pounds to gain weight pounds;

Pigs reaching market weight faster.

Dr. G. W. Rahnefeld, animal geneticist of CDA's experimental farm at Brandon, Man., maintains that performance records have a definite value in selecting sires for the production of crossbred swine for slaughter.

He had data on the performance of sires and also of their progeny. The highest performing boars:

- a) gained .45 pounds more per day;
- b) needed 83 pounds less feed over the test period; and
- c) had .23 inches less backfat than the lowest performing boars taking part in the test.

The progeny of the high and low performing boars were compared.

- a) The average daily gain of the crossbred offspring sired by the top boars was .14 pounds more.
- b) Feed efficiency was also superior, the progeny reaching market weight with 26 pounds less feed than the offspring of the low-performance boars.
- c) Backfat thickness was the same in progeny of both high and low performance boars.

Dr. Rahnefeld adds that these good results by the progeny of high performance boars were reached by selecting only on the male side. If the producer selected his sows with the same care as he did the boars there would be further improvement.

Dr. Rahnefeld's conclusion: commercial producers can get pigs to market faster and increase feed efficiency by purchasing boars which have a record of high performance.

(From "Farm News" No. 1091)

This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.



Cattle belonging to Mr. Adelard Tremblay of Barnston, Stanstead County, resting quietly in the field at noon, undisturbed by flies.

WARBLE GRUB CONTROL

Stockmen checking on their supplies of insecticides in preparation for warble grub control will be interested in knowing that entomologists at CDA's research station at Lethbridge are looking for improved means of eradicating this pest of cattle.

J. Weintraub of the Veterinary-Medical Entomology section there says systemic insecticides give almost complete control and prevent the major damage caused by warble grubs.

In the meantime tests at Lethbridge have begun a view to realising sterilized males to prevent warble fly reproduction. Chemicals used do not impair the mating vigor of the males but they prevent fertilization of the warble fly eggs. The U.S. Department of Agriculture scientists have determined the doses of gamma radiation required to have the same effect.

Mr. Weintraub comments that much more research is needed to perfect methods that may be recommended for practical use and he sees systemic controls being relied on for several more years.

(From "Farm News" No. 1090)

INCREASING THE FARMER'S NET INCOME

Speaking to members of the eastern section of the National Weed Committee at Quebec in November, Dr. Ernest Mercier said that the primary aim of the Department of Agriculture and Colonization is twofold: to raise the net income of farmers, and to transform as many family farms as possible into viable and profitable agricultural enterprises.

A viable (i.e. economically sound) and profitable family farm is one that

brings in a big enough net income to provide a good living (comparable to that enjoyed by workers in industry) for one and if possible two average-sized families working it on a full-time basis. These aims can be achieved on the following three conditions: that the farmer has access to regular and profitable markets; that he is assured of fair and pre-determined prices for fixed volumes of farm produce; and that means of lowering production costs of farm produce are available and applied, namely: adoption of modern farming methods; easy access to suitable long-term, medium-term, and short-term farm credit; introduction by the government of incentives in the form of assistance policies favourable to the consolidation and development of viable family farms.

Realization of these conditions depends on certain changes:

1. Acceptance by all farmers of the absolute necessity of regulating agricultural production — otherwise it is useless to think about obtaining fair prices, known long in advance, for fixed quantities of farm produce.
2. Establishment by the Government, in consultation with the farmers, of support prices for agricultural products; this is possible provided that the farmers accept marketing quotas.
3. There must be very close collaboration between the provincial and central governments and the various farmers' organizations in the establishment of support prices and marketing quotas.

In conclusion, Dr. Mercier asked whether farmers' and processors' groups in conjunction with governments are now prepared to reach an

understanding in order to stabilize the farmer's net income. Agricultural readjustment both in Quebec and the rest of Canada is unthinkable without this joint action which is more urgently needed today than ever before.

MAINLY BECAUSE OF THE FAT!

More hogs miss the A grade because of just a little too much fat, than for any other reason. This is pointed out once again by the latest semi-annual hog carcass survey conducted by the Canada Department of Agriculture, which shows that 90% of all B hogs could have been A's if they had been sent to market with less finish. Six months ago, this figure was 88% and prior to that it was 86% and 84%.

Hogs in Eastern Canada were faulted 91.5% for being overfinished, while only 87% of Western B hogs were criticized for this reason.

There was still a significant number of hogs that missed the A grade because of improper weight. About 23% of all B hogs were either a few pounds over or under the required dressed weight range of 135-170 lbs.

(From "Facts, Figures, Comment" Vol. 14 No. 41 — Meat Packers Council of Canada)

NEW AGRONOMES

The Minister of Agriculture and Colonization announces nine changes in the staff of the County agricultural information offices. Five of these changes are appointments of new agronomes, two are transfers, and two departures.

The newcomers are Mr. Gratien Jobin (Frontenac), Hugues Leblanc (L'Assomption), Sterling Knox (Mégantic South), Alain Pesant (Papineau), and L. Paul Voyer (Rimouski).

One of the transfers is that of Mr. Bruno Bellemare, who has relinquished his position as instructor with the sugar-beet refinery at Saint Hilaire to become agronome in the County of Yamaska; the other involves Mr. Armand Lauzière, formerly instructor in agricultural co-operation at Amos, who will now do agricultural extension work in the County of Saint-Maurice.

As regards the departures, Mr. Thomas Tremblay of Bagot County has retired and Mr. Keith Bradley of Brome has resigned. (September 30, 1964).

This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.

Animal Health Division

by Ernest Mercier

The Deputy Minister of Agriculture and Colonization

SUPERVISION OF THE HEALTH OF PUREBRED SWINE

The objects of this assistance policy of the Department of Agriculture and Colonization are as follows:

1. To determine the incidence of atrophic rhinitis and virus pneumonia in herds of purebred pigs.
2. To supervise the health of such herds by regular visits and suitable recommendations as regards rearing, with a view to wiping out atrophic rhinitis and virus pneumonia.
3. Gradually to improve the health of herds of purebred swine.

ELIGIBILITY

Only herds of purebred swine in the Province of Quebec are eligible for the benefits of this policy.

CONDITIONS

1. This assistance policy is available to rearers of purebred swine who ordinarily keep five or more brood sows all of which are registered in the Canadian National Live Stock Records at Ottawa.
2. Any person wishing to take part in this programme should apply to the head of the Animal Health Division of the Department of Agriculture and Colonization, Parliament, Quebec City, using form H.A.P.-4.
3. Following reception of the aforesaid application, a veterinary inspector from the Animal Health Division will inspect the entire herd.
4. If the herd shows unmistakable signs of either of these two diseases, the owner must undertake a programme calculated to eliminate them.
5. If his application is accepted by the Animal Health Division, the owner must agree to:
 - a) keep a record of the births, deaths, and sales of all pigs born on his farm;
 - b) identify all piglets farrowed, by tattooing them before they are 8 weeks old;
 - c) allow the veterinarian from the Animal Health Division to inspect all pigs in the herds as

- often as he considers necessary;
- d) slaughter or have slaughtered any pig (s) that the veterinarian requires for purposes of examination or diagnosis;
 - e) follow the health programme recommended by the veterinarian, including periodic disinfection of premises occupied by pigs;
 - f) place at the entrance to the pigery a foot-bath containing disinfectant solution recommended by the veterinarian, and require all visitors to use it;
 - g) buy pigs to add to his herd only from breeders who are taking part in this programme;
 - h) as far as possible, avoid bringing back to his premises any pig which has been taken out of the herd for shows or sales, until it has been isolated from the rest of the herd for several weeks.

CONDITIONS FOR THE ANIMAL HEALTH DIVISION

If a herd owner's application is accepted by the Animal Health Division: —

1. the Division will appoint a veterinary inspector to inspect the herd at least three times a year;
 2. the Division will provide the owner with a copy of the veterinary inspector's report following each inspection;
 3. when the herd has been under observation for a year and is found to be free from clinical symptoms of atrophic rhinitis and virus pneumonia, the owner will receive a document to that effect from the Animal Health Division;
 4. the said document will become null and void and must be returned to the Division's veterinary inspector by the owner of the herd if clinical symptoms of either of the diseases appear or reappear in the herd.
- N.B. The said document is not a certificate of health and does not render the Department of Agriculture and Colonization in any way responsible.
- QUEBEC, 19th of August, 1964.

IS YOUR FARM PROFITABLE?

Mr. F. Morency of the Quebec Department of Agriculture and Colonization suggests the following criteria for judging the profitability of Quebec farms.

If a dairy farmer is to earn a reasonable salary, the average annual milk yield per cow should be at least: (a) 6,500 pounds if the milk is sent to a butter factory; (b) 8,000 pounds if it is sent to a butter factory or a cheese factory where casein or skim-milk powder is also produced; (c) 10,000 pounds if it is sold for fluid consumption. These marketing distinctions are made because feeding costs are much higher in the last two cases.

Another rough guide is that, in three years, the gross value of the sales of farm products should at least equal the amount of capital invested. For example, a farm valued at \$20,000 should bring in at least \$7,000 a year.

To have a turnover of this size, it is estimated that the farmer must put in at least 3,000 hours of useful work per year on his farm. At that rate, he should produce 200,000 pounds of milk annually (25 cows yielding 8,000 pounds of milk each).

Mr. Morency advises those whose farms are not profitable according to these standards to consult their agronomes.

QUESTION EFFICIENCY OF FLOOR-FED HOGS

Floor feeding twice daily in long narrow pens has not shown gains and feed conversion matching the performance of pigs self-fed in the same type pens in Iowa State University research.

Carcass quality of the floor-fed pigs was slightly superior to that of the self-fed pigs, but not enough in terms of final price and profit to offset the higher feed requirements of the floor-fed pigs.

While a relatively new idea in North America, European producers have tried this system for several years and found no difference compared to trough feeding. Results are better when floor-fed hogs receive limited feed, but daily gains are then reduced considerably.

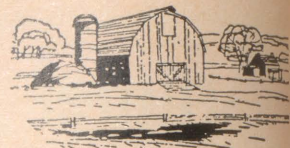
From: *Facts, Figures, Comment*, Vol. 14 No. 25, published by the Meat Packers Council of Canada.

This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.



The Better Impulse

NEWS AND VIEWS OF THE
WOMEN'S INSTITUTES OF QUEBEC



One of the prize-winners at Waterloo-Warden's School Fair, was David Spencer, who received a prize for the Best School Fair Garden from Mr. John Chapman.

EXPRESSION OF THANKS

Mrs. Harvey and Mrs. Beattie would like to extend their thanks and appreciation for the many cards and letters they received from the members following Mrs. Harvey's illness, and Mr. Beattie's accident.

FROM THE OFFICE

Correction — In the 1964 Salada Contest, 1st prize for SWEATER was won by Mrs. R. C. Davis, South Bolton WI, and not by Mrs. Burbank as reported.

NEW COOKBOOK

Gatineau County has just published a new cookbook. Price \$1.00

OCTOBER REPORT CORRECTION

October report of Cleveland meeting should read: "Cleveland held their meeting at the Wales Home, where Mrs. Kenneth Armstrong is matron. Mrs. Henry Armstrong, first president of Cleveland WI, and now a resident at the Wales Home, introduced the guests."

Many branches reported their special interest in UNICEF. Some sponsored Hallowe'en collection, or parties or made donations (East Angus, Sawyerville, Dunham, Fordyce, Hatley, Stanstead North, Hemmingford, Gore, Melbourne Ridge, Richmond Hill, Richmond Hill Young Women, Lennoxville) and some purchased Christmas cards (Brookbury, some Gatineau County branches, Shawville, Wyman-Elmside, Brownsburg and Pioneer.)

TOMIFOBIA WI'S 50th

Members of the Tomifobia WI together with former members and friends from neighboring branches, met on the evening of November 6 at the Tomifobia United Church Hall to celebrate the 50th anniversary of the branch's founding, the second in the County. The president, Mrs. Rixford Knight, greeted the guests and spoke briefly on the debt owed to the founders and other workers of former days.

She read greetings from former members, including Mrs. H. G. Taylor,

FWIC National Secretary, and Mrs. T. Ham, the branch's only living charter member. Mrs. Geo. Hatch, 1st Vice-Pres. of the Stanstead County WI, brought best wishes and congratulations. A short account of the history of the branch was read by Mrs. E. R. Embury, a member for over 40 years.

Saying that an anniversary was a time for looking forward as well as back, Mrs. Knight then introduced Mrs. Grant LeBaron, a member of the FWIC Board, who spoke on the work being done in the north. Rev. C. Gustafson showed slides of Roman ruins in Britain with a commentary on that interesting and little known period of British history.

A social hour and refreshments followed with a cake decorated with a blue and gold replica of the QWI pin.

STANSTEAD COUNTY HONORS ITS FIRST BRANCH

Holmhurst, the home of Mr. and Mrs. W. B. Holmes, where the first meeting in Stanstead County was held 50 years ago, was the scene of a very pleasant gathering Oct. 31, when over fifty members of the various branches

Mrs. W. B. Holmes, president of Way's Mills, welcomes her guests.



of the County came to celebrate the anniversary.

The living room was attractive with chrysanthemums and gold decorations, including a cake trimmed with gold leaves and candles.

Mrs. Holmes, President of Way's Mills W.I. in welcoming the guests, gave a brief resume of the history of the Way's Mills WI. It was organized by Miss Frederica Campbell in 1914, with 12 members; Mrs. W. H. Holmes as President, Mrs. F. Wilkinson, Vice-President and Mrs. W. B. Sargeant, Sec. Treas. Mrs. Holmes was president for many years, also County President and later held two different offices in the Provincial organization. From the beginning one of the prime interests of this group was education and better schools, with welfare and health a natural follow-up.

Mrs. C. Hovey read messages from friends and former members. Mrs. G. McHarg and Mrs. N. Pierce of the Ayer's Cliff WI entertained with vocal duets, and Mrs. D. Mackinnon with violin solos, all accompanied by Mrs. G. Shipway.

Presiding at the tea table were Mrs. J. Mackinnon, a charter member, Miss Agnes Oliver, a member for over 40 years, Mrs. C. Hovey, and Mrs. A. L. Buckland (nee Nellie Holmes), eldest daughter of the late Mrs. W. H. Holmes.

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by Norma E. Holmes

Dear Min:

Well, we got our Xmas present — a bonny boy. I got John up in the night to take me to the hospital but, to my mortification, they sent me packing home again for another week. As John said (with a snide reference, I think, to that hairdo), "You can't ALWAYS improve on nature."

I think it was really because I was so anxious to be home for Xmas. I was in on the tree-gathering anyway. We all went to the woods and Jackie was given the honor of selecting the Xmas tree, which took due deliberation. It was a beautiful day, one of those sunny sparkling ones. The men pulled it home (the tree, I mean) with Wendy trying to ride on the trunk.

By the way, you should have seen her inspecting the new brother. She leaned her elbow on the table and with her chin on it, studied him for at least ten minutes. Then she gave her conclusions. "He's funny," says she. Buddy isn't his name, but Jackie calls him Buddy and Wendy copied him, so it will probably stick. He's really awfully good and sleeps peacefully all night. The neighbors claim it is because we pinch him during the day.

Jackie likes school. The first day he

was out at the road so early. He was afraid the school bus driver wouldn't remember that Jackie Lowman was starting to go to school. He was so excited, but when he climbed on he didn't forget to look back and wave. Wendy saw me applying my apron to my eyes and asked, "Was Jackie bad, mamma?" "No, Wendy," I told her, "it's just like the little birds. It was time for Jackie to leave the nest," and then I had to use the apron all over again.

He put a present on the tree for us that he made in school. He said it was a pen holder — lopsided but beautiful. I thought John should have it on his desk and he said I should have it on mine, so we compromised. It's on the buffet.

We had a quiet Xmas with just the family — because of me just home with Buddy, and Mother Lowman insisted on cooking the turkey, which was all right with me. A very satisfying day. We are very thankful for our little oasis of peace and happiness in a mixed up world.

A very bright New Year to you and yours. With love from all the Lowmans.

Eloise

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FINEST QUALITY AND FLAVOUR

THE MONTH WITH THE W.I.

ARGENTEUIL: ARUNDEL: Colonel Emmett spoke very interestingly on Crippled Children, Water Pollution, and County Health Units; contest held-give a word meaning "educate"; discussed County play. **BROWNSBURG:** Mr. L. Tomalty, local townsman, showed slides of surrounding countryside, wild flowers and nesting birds; demonstration on how to sew in zippers and other sewing hints; homemade cookies sent to Ste. Anne's Veterans' Hospital; Remembrance Day wreath placed and poppies worn. **DALESVILLE-LOUISA** saw demonstration on "Drop Doughnuts"; favourite recipes exchanged; enjoyed hat-making course with Miss McOuat. **FRONTIER:** Mr. A. Zaplaski, blind veteran, talked on the work of the C N I B in Argenteuil; donated money and bedding to Blind Association. **JERUSALEM-BETHANY** heard enlightening talk on the present "Serious Water Situation", by Dr. L. A. Middleton; entertained **LAKEFIELD** branch: both branches wore poppies, and answered roll call by airing a pet complaint. **MILLE ISLE** held discussion on International Affairs; read article on the Queen's visit to Canada; entertained **MORIN HEIGHTS** at meeting where slides of a trip around the world were shown. **PIONEER** learned of the origin and functions of UNICEF; quiz on citizenship held; Mrs. George Legett spoke on her recent trip to Europe, and correlated it with views on citizenship; Miss Ruth Todd, daughter of Pioneer's first president was presented with a FWIC pin; for roll call named an unforgettable character. **UPPER LA-CHUTE** **EAST END** enjoyed word contest on "Canada" and on everyday sayings; held successful whist; bought and wore poppies.

BROME: **ABERCORN** held citizenship meeting with discussion and questions and answers on Youth Today; bursary to Grade VIII student at Sutton High School donated; named a Canadian tree and wore poppies. **AUSTIN** continued their Library project by holding a Library Tea which was well-attended; an oil painting was auctioned off, which had been donated by Miss N. Collyer, and realized a considerable sum for more aid to the Library; entertained a Compton County W.I.; awarded bursary to Miss Ann Davidson; held silent

sale auction; 25th anniversary party for a member held; sponsored a children's Hallowe'en party (adults too) with games, and prizes for costumes and treats; enjoyed visit from County President, Mrs. Westover. **KNOWLTON'S LANDING** entertained County officers; exchanged favourite recipes; donated to social welfare work. **SOUTH BOLTON** welcomed a new member; Mrs. Westover gave account of her attendance at U.N. Seminar, also county news; letter read from and picture shown of Italian child adopted by Brome County; poppies worn; Mrs. Schoolcraft reported on her visit to Adelaide Hoodless Home and showed slides; Mrs. Lee reported meeting of Brome County Family Services; curator of local museum sent branch more information on history of the Club building which is 100 years old.

BONAVENTURE: **BLACK CAPE** answered roll call by reciting a Thanksgiving verse; sent Christmas gift to their adopted child in the Philippines; article read on decorating the farm home. **GRAND CASCAPEDIA:** books as prizes were given to Pupils at New Richmond High School and St. Jules Convent; eye glasses purchased for needy child; held well-attended Hallowe'en dance; home-baking sale held. **MARCIL** provided vitamins for local school children; turkey sold. **MATAPEDIA** donated jams, jellies and pickles to Home for the Aged at Maria; vitamin capsules purchased for local schools. **PORT DANIEL** donated school prizes.

CHATEAUGUAY - HUNTINGDON: **DEWITVILLE** entertained the Semi-Annual meeting. **DUNDEE** heard helpful hints, one of which was to paint keyhole with luminous paint, to make it visible in the dark; demonstrated an Indian-made birchbark moose collar; quiz held on Canadian Citizenship facts; clothing sent to Unitarian Service; Penny Auction held. **HEMMINGFORD** donated W.I. Challenge shields, W.I. Scholarship and prizes to deserving High School students; talk given on Verdun Protestant Hospital; gifts for forgotten patients at this hospital donated; demonstration on how to make large ornamental candles; demonstration of attractive ornament made from per-

fumed soap, plastic flowers, pearls and pins. **HOWICK** heard facts on citizenship, "Canadian and what they are doing in the world"; Mrs. W. Hamilton exhibited 14 quilts, one over 125 years old, others over 80; pot-holder contest won by an over-80 member; two scholarships presented to school, and 8 prizes for home economics and wood working; read letter from Mrs. W. M. Nix of Broughton, England, W.I. who wishes Howick to be their Canadian Link; linen picture towel sent as gift. **ORMSTOWN** entertained County President, Mrs. H. Robertson who spoke on topic "Is Living More than Skin Deep?", and on W.I. work; demonstration of apron made from paper napkins.

COMPTON: **BROOKBURY** bought and enjoyed reading Q W I History. **BURY** and **CANTERBURY** enjoyed course on low-calorie cooking with Miss McOuat. **Bury** donated to St. Paul's Anglican Home; contributed to Armistice Day wreath. **Canterbury** petitioned Department of Transport for the return of the Megantic Dayliner; donated to wreath; held bridal shower. **COOKSHIRE** had slides and heard talk on the Youth Pilgrimage to the U.N.; donated to the Legion, and to a wreath. **EAST ANGUS** entertained Sawyerville and Cookshire branches, and teachers, with guest speaker to Editor of the Sherbrooke Record; donated to church hall. **EAST CLIFTON** was hostess to the Compton County Semi-Annual, with all branches hearing reports of the meeting. **SAWYERVILLE** entertained teachers, and heard Mr. Patton, High School Principal, speak on current changes in the educational system; donated school prizes; learned of W.I. work in Northern Quebec; served refreshments at Historical Society meeting. **SCOTSTOWN** donated to hot school lunches; renewed CAC membership.

GATINEAU: **AYLMER EAST** held a special meeting to celebrate their 39th Anniversary; three charter members, Mrs. W. J. Rudmore, Mrs. F. Routliffe and Miss Margaret McAllister were present; Mrs. H. Ellard congratulated the branch on its achievements; quiz on W.I. held; books by Canadian authors named; poppies given to schools; heard a paper on Butter vs Margarine.

catered for a wedding; hat contest held with hats made of "something in the kitchen". EARDLEY entertained Mrs. Roy Leach, County President, who conducted a most interesting quiz on the WI, and spoke on Parental Delinquency; silence observed for Remembrance Day, Mrs. I. Merrifield read a paper entitled Peace, Mrs. C. Fares read 'Poppies'; donated to an Armistice Day wreath. KAZABAZUA held most successful rummage sale; a New Canadian gave her impressions of Canada, and told some of her experiences; qualities of a good citizen named; sponsored Remembrance Day Service. RUPERT heard Mrs. Strike and Mrs. Lindsay, of Kars, Ont., speak on their prize-winning Tweedsmuir Village History.

MEGANTIC: County sponsored most successful School Fair, and are planning another for 1965. INVERNESS earned about Adelaide Hoodless Home; each member told what she had learned from the WI; donated to school fair prize list, Coupon #367, Lady Aberdeen Scholarship, and hot lunches in school; wore poppies as roll call. KINNEAR'S MILLS' roll call was wearing a poppy to commemorate Armistice Day; each member told of a cooking failure; card party held.

MISSISQUOI: COWANSVILLE: article read dealing with the value of various kinds of margarine, uses in cooking, etc.; useful hints on fall gardening; quiz on WI work; Christmas gifts sent to Sherbrooke School for Retarded Children, and to the branch's adopted child in Jamaica. DUNHAM entertained Stanbridge East; articles for cancer patients donated by a member; entered a candle in Candle Contest; donated to hot school lunches. FORDYCE sold poppies; citizenship meeting held; handwork articles made and sold. STANBRIDGE EAST: a recent TV showing of a rural school and homes in this area was discussed, with local reactions expressed; contest of jumbled letters of names of various diseases proved interesting; card party held with proceeds used to purchase Coupon #367; donated to library needs of two local schools.

PAPINEAU: LOCHABER held most successful sewing course under direction of Mrs. Wells, with thanks extended to the Orange Lodge and to Our Lady of Victory Church for use of their halls; novelty sale and drawing for a doll netted a good amount for the treasury; two minutes silence observed, with a Remembrance Day reading.

PONTIAC: CLARENDON had a talk by Public Health Nurse; donated food

to local hospital. QUYON held sewing course; French Course is being held. SHAWVILLE collected for C.N.I.B.; White Elephant sale held. WYMAN-ELMSIDE donated fruit, canned goods and vegetables to local hospital.

QUEBEC: VALCARTIER heard hints on economizing; held quiz.

RICHMOND: CLEVELAND held jumbled word contest on sports. DENISON MILLS held card party; sold a quilt. GORE: Miss Nora Roberts of the Sherbrooke Trust Co. was guest, speaking on the importance and necessity of a will, and on Bill 16; donated to hot school lunches; donation to Cecil Butler home to be used for children's Christmas presents; named Governors-General of Canada and the years they held office; sale of poppies and wear one; entertained husbands at Bar-B-Q supper followed by a card party. MELBOURNE RIDGE: members read an article of interest from the local paper as roll call; quilt sold; donated to hot school lunches; contest on TV advertisements held; poppies bought and worn. RICHMOND HILL donated to Sherbrooke School for Retarded children; held Bingo and Card Party. RICHMOND YOUNG WOMEN heard Brian Woods speak on his trip to the United Nations, and to N.Y. World's Fair, with slides shown; hostess branch for County Semi-Annual. SHIPTON held card party. SPOONER POND entertained Richmond Hill Branch; bought a poppy and wore it; held bingo evening; Silver Travelling Cup, presented by County President, Mrs. T.E. Gilchrist, was won this year by this branch.

ROUYN-NORANDA: NORANDA held open meeting, with Mr. F.J. McNally, Barrister and Q.C., as guest speaker; his topic was an explanation of Bill 16, and also advice on wills and information about Succession; a question period followed. This meeting was a follow-up of previous discussions on these topics, and filled the need for further information. FARMBOROUGH and ROUYN members attended the meeting. Donations brought for Christmas gifts to pensioners; used clothing and shoes collected. Successful Bake sale held by NORANDA and ARNTFIELD jointly.

SHEFFORD: GRANBY HILL catered Mother-and-Daughter Banquet for Guides and Brownies; sent parcel to forgotten patient at Verdun Protestant Hospital; roll call on "Ways We Spoil our Children". GRANBY WEST held contest on spelling unfamiliar words.

SHERBROOKE: ASCOT entertained Belvedere; held a display of cook

books, with the oldest one dated 1889; number contest held; Beatrice Cameron Memorial Bursary presented to Sharon Fleming. BELVEDERE assisted at school for retarded children; read or recited Thanksgiving poems; guessing contest held. BROMPTON ROAD held discussion on Canadian TV programs, sent petition to proper authorities to ask for more suitable programs; card party held in aid of School Fair; diapers donated to Cecil Butler Home; worked at Cancer Clinic. LENNOXVILLE is again sponsoring Adult French Classes; held most successful school fair; heard articles on "You and the World Community" and "Plants known to cause Hay Fever; Chinese Auction held.

STANSTEAD: AYERS CLIFF: Miss Elkas of Sherbrooke Hospital, Miss Monfette of St. Vincent de Paul Hospital explained film on Cancer entitled "Two Women" and answered questions; explained procedure of cancer clinic; entertained Ascot Branch at this meeting; purchased and placed Memorial Cross on Cenotaph on Remembrance Day. BEEBE: Mr. Arthur Curtis Jr. of Stanstead was guest speaker, and gave an interesting and detailed report of the educational system in Stanstead County, going back to the 1800's; Miss Moranville did a twenty minute broadcast on World-Wide Cheeses, and how made, over W.I.K.E. Newport, Vt.; card party held with proceeds to Dixville Home for Retarded Children; made a wreath, and placed it at Beebe Memorial Gates on Remembrance Day; article on Immigration read. HATLEY: Mr. and Mrs. W.J. McDougall of Lennoxville showed slides of recent trip to British Isles and Europe which featured agricultural life and flowers, as well as historical places; some slides showed interior of barns where cows were lying on mattresses! This was an open meeting, and much enjoyed by all who attended; donated to Sunday School's Christmas tree; sent gifts to Dixville Home; placed Memorial wreath on Cenotaph at Remembrance Day service. HATLEY CENTRE: Mr. J. Vesser from Dixville Home spoke on the work for retarded children. STANSTEAD NORTH: guest speaker, Mr. Graham, president of Eastern Townships World Federalists, spoke on World Law; successful rummage sale held.

VAUDREUIL: HARWOOD: Mrs. Prinn showed slides of her recent trip to England; drawing for ACWW towel purchased at ACWW Office in London netted 180 Pennies for Friendship; homemade cookies, books and playing cards sent to Veteran's Hospital's Ste. Anne de Bellevue; one of the Harwood bursaries presented to Peter Harwood.

QWI and Macdonald College

TO MANY PEOPLE the connection is a mystery and they wonder what the name on the office door, "The Quebec Women's Institutes" has to do with Macdonald College. Like Topsy it 'just grew'.

Mrs. Jane Muldrew, widow of the first Dean of Macdonald Institute (Guelph) was at one time Housemother in the girls' residence at Macdonald College. She had come from Ontario where the Women's Institutes were becoming well established. Mrs. Muldrew wrote articles for the College magazine and the Journal of Agriculture and she, having seen their good work, was continually stressing it as a branch of extension work for the College.

First branch formed

Soon she began to get enquiries to which she outlined the setup of the Institutes of Ontario, hoping that 'in many districts there may be found women who will be glad to take up this work that has had such success and that has found so glad a welcome in the rural districts of our sister province? Her hope that 'before long there will be some steps taken in the rural districts of this province to organize' was soon answered as a call came from Mrs. George Beach of Cowansville, Quebec, to come to Dunham to tell a group of interested women about the Institutes. From this meeting came the first branch in Quebec, January 27, 1911.

The work of organization of clubs was taken on by Macdonald College and in 1913 under the Federal Agricultural Instruction Act, Miss Frederica Campbell of the staff of the School of Household Science was appointed Superintendent of these Clubs and until her death in 1918 was their inspiration and mainspring.

A constitution drawn up

A meeting of Club presidents was called at the College in February, 1914. They were warmly welcomed by the principal, Dr. Harrison, who commended their work. He noted that in all the other provinces the Clubs were assisted by the Provincial Government, but that

until this happened in Quebec, the College would help in any possible way with the work. A constitution and by-laws had been drawn up by the staff and, with some amendments, these were adopted. The name chosen was Homemakers Clubs, but this reverted to Women's Institutes in 1920.

By 1918 there were so many branches that Miss Campbell (then Mrs. MacFarlane), needed assistance and a demonstrator was appointed. The following year another was added. In 1914 the Department of Agriculture, Quebec, had been approached and had agreed to print the Handbooks and Annual Reports for the Clubs. Gradually the Department gave more support in the way of grants and printing. In 1939 the College was obliged to withdraw its support as to demonstrators and this was taken over by the Department of

Agriculture, which has since paid the salaries of the office secretary, technicians and demonstrators and the office expenses. Mme. P. C. LeBeau was appointed as liaison between the Institutes and the Department and has been a frequent and welcome visitor at Convention and other meetings.

Macdonald College has always supplied the QWI with office space. Since the 1914 meeting they have met at the College for their annual conventions. The annual short course which began in 1948 is also held at the College and instructors for the course are supplied partly from the College staff.

To the QWI the College has always felt like their very own Clubhouse and this is probably due to the unfailing courtesy with which they are welcomed for a week's stay in the old familiar rooms and buildings twice every year.

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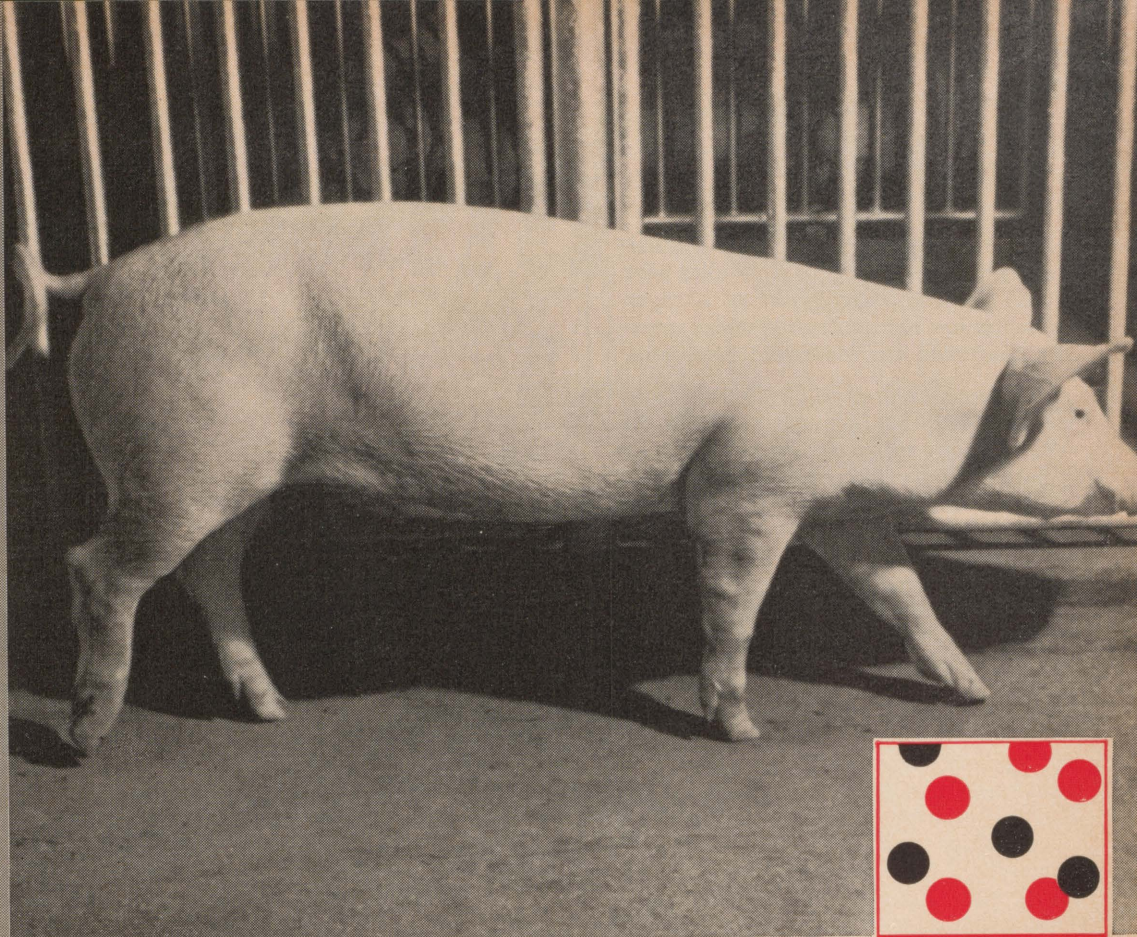
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The Present

(Continued from page 17)

tion by the Azotobacter and Clostridium bacteria. Several soil samples have been taken and the degree of nitrogen fixation has been measured under closely controlled environmental conditions.

In co-operation with the Pulp and Paper Research Institute, the Dept. of Bacteriology has established a group of plots at Baie Comeau to study this fixation of nitrogen by bacteria under a black spruce forest cover. The questions under study involve what happens to this particular soil when nitrogen is added in the form of urea? What happens when urea is added to a soil of this type? Where does it go? What happens to the humus of this soil as the nitrogen is added?

"Up until recently, the Russians were exploring this principle more than we were," according to Dr. Knowles. "In fact, they were formulating bacterial fertilizers and spreading these on the soil in an attempt to increase crop yields. More recently it appears though, that more emphasis is being placed on the use of chemical fertilizers to increase crop yield in Russia. Even so, there could be a possibility that an Azobacter fertilizer could make quite a difference in crop production."

This entire field of studying the biological relationships of nitrogen fixation in soils is a world-wide biological problem. Research laboratories throughout the world are trying to find the answers. Macdonald College and Dr. Knowles are among this group of scientists. Their answers will not only answer their immediate questions but will contribute to feeding the hungry half of the world.

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